



## **Financial crisis and real property bubbles: cases from the Nordic and Baltic countries**

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## Abstract

The past 30 years have shown a steep rise in the number of financial crises and bubbles in the financial and real estate markets.

Given master's thesis attempts to figure out the causes of the real estate bubbles during the series of crises in Scandinavia in the 1990s and in the Baltic countries and Iceland during the global financial crisis.

The undertaken study covers theoretical aspects of financial crises such as financial instability hypothesis, concepts of crisis, origin of crises, herding and disaster myopia of investors. The theory of real estate bubbles is also thoroughly reviewed, as well as different viewpoints on the types of bubbles, signs of financial bubbles, cycles of the real estate, concluding with a summary of advantages and disadvantages of the real estate investment.

The research is based on the methods of case analysis and cross-case analysis. The results of the research show that every creation of an asset bubble, and more particularly a real estate bubble, is preceded by a prolonged "boom" period, characterized by over-optimism of investors in their judgements. The burst of the bubble creates instability in the economy, as unemployment increases and prices decline.

This study aims to make understanding of the crises in Scandinavia in the 1990s and in the Baltic countries and Iceland more transparent and integrated. Numerous outcomes of the crises and behaviouristic patterns of investors during the boom periods and after the collapses are described. Based on this aggregated knowledge and "lessons from the past", a better approach to handling crises can be developed.

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**Keywords** real estate bubbles, property bubbles, crises in Scandinavia in the 1990s, real estate bubble in the Baltic countries, crisis in Iceland, financial collapse, speculative bubble, herding, financial crashes, boom-bust cycle, financial instability hypothesis, financial crisis

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Espoo, 28 March 2016

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## **Abbreviations**

CDC: Credit default swap index, also CDX

CDO: Collateralized debt obligation

CDS: Credit default swap

CDW: Collision Damage Waiver, additional insurance coverage offered to an individual, renting the vehicle if it is involved in a collision

CEE: Central and Eastern Europe

Conduit: Asset-backed commercial paper program (ABCP program, ABCP Conduit or Conduit)

ECU: European Currency Unit

EEA: European Economic Area

EEK: Estonian kroon, the currency of Estonia 1928–1940 and 1992–2011

EU: The European Union

FIM: Finnish markka, the currency of Finland 1860 - 2002

GDP: Gross domestic product

GNP: Gross national product

IMF: International Monetary Fund

IPO: Initial Public Offering

ISK: Icelandic krona, the currency of Iceland

LTL: Lithuanian litas, the currency of Lithuania 1922–1941 and 1993–2015

NOK: Norwegian krone, the currency of Norway

REPO: Short-term repurchase agreements

SEK: Swedish krona, the currency of Sweden

SPE: Special purpose entity or SPV

SPV: Special purpose vehicle

SWF: Sovereign wealth fund

# **Part I – Introduction**

## **1. Introduction**

Introduction part defines the main principles of the present research, explains the author's motivation, the research methods used, outlines the research questions and the key terms of the thesis, as well as lists its limitations.

### **1.1. Background**

The aim of this thesis is to identify the causes of real estate crises, as well as to discuss the theoretical aspects of banking failures, herding and disaster myopia. Significant attention is paid to the real property bubbles and their creation, the signs of bubble formation and their connection to the real estate cycles. In times of a crisis, investors lose significant funds invested in the real estate assets. In order to prevent and minimise such losses, it is of crucial importance to understand which factors were the driving ones in a crisis.

Every crisis is unique, and is usually preceded by a “boom” period. During the boom period, the economy of a given country may be deregulated, which in its turn stimulates the loan taking and leads to a quick increase in the value of assets (Brunnermeier & Oehmke 2013; Koyama 2010; Kindleberger & Aliber 2011).

Optimism among investors rests high, as well as their eagerness for speculation, especially in the domain of real estate. Due to the readily available cheap loans, the investors start to acquire property by taking loans and eventually become over-indebted. At the end of the boom period, it gets difficult if not impossible to sell the property; the latter defines the starting moment of a crisis (Senhadji Semlali & Collyns 2002; Okina et al. 2001).

Quite often crises happen unexpectedly, and it is difficult to understand when the shock might happen. Usually the turning points are the collapses of big banks or financial institutions.

By using the examples of Scandinavian crisis in 1990s and the Global Financial Crisis, this thesis tries to delve into the “before” and the “after” of a boom period by outlining the negative consequences of the excessive loan-taking. The case study is based on the countries with close geographic and historic relationships and development patterns. The case of Scandinavian crisis in the 90s involves four Nordic countries: Finland, Sweden, Norway and Denmark. The Global Financial Crisis is looked at from the perspective of Iceland and the three Baltic countries (Estonia, Latvia and Lithuania).

In order to understand mechanisms of bubble formation, it is necessary to understand the fundamental factors behind the “overheating” of an economy. Global or regional factors might play an equally important role in the local real estate markets as the financial relations today are closely interlinked and intertwined. It gets increasingly harder to avoid the influence from the neighbouring countries.

The importance of the discussion brought up in this thesis manifests itself by the need to address the ever-increasing number of global problems in the financial markets, such as crises and banking collapses. The author offers a thorough analysis of the retail real property estate index, which was



not covered in such a manner in the recent research studies and might be of great interest in the academic context.

## **1.2. Research questions**

In the given thesis is made a research on the real estate bubbles and their creation by using the examples of the crisis in Scandinavia in the 1990s and the Global financial crisis in the Baltic countries and Iceland.

The main research question of the study is as follows: *which factors have caused the creation of the bubbles in the real estate market during the series of crises in Scandinavia in the 1990s and in the Baltic countries and Iceland during the global financial crisis?*

Thus, the main research is dedicated to the principles of bubble formation and the phenomenon of an asset bubble.

The sub-questions of the research are:

- 1) Why were some countries less affected by the crisis than the others?*
- 2) Were the crises caused mainly by the local factors or, alternatively, by the global factors as well?*

The supporting questions help the author investigate which factors and measures made it possible for the countries less affected by the crisis to avoid some of the negative consequences brought by it, and to discuss the influence of globalisation in the real property market.

## **1.3. Research methods**

The master thesis in question consists of two sections: the theoretical section and the empirical one. The theoretical section is based on the books, articles, and academic journals, retrieved from the databases like Nelli portal, Google Scholar, Scopus and Emerald Insight. All articles were found by using the keywords provided in the abstract of the given master thesis. All links to the bibliography are given in the bibliographic part of the thesis.

The empirical part is represented by the case analysis and the cross-case analysis, in which the fundamental factors of the crisis formation were analysed. The material for the cross-case analysis was taken from the global statistics websites like [bis.org](http://bis.org), [worldbank.org](http://worldbank.org) and [indexmundi.com](http://indexmundi.com).

Materials for the description of the case were taken mostly from the same sources as the material in the theoretical part with the focus on the given research topic. The purpose of the given research is to provide answers to the questions, which are presented in the sub-chapter "research questions".

## **1.4. Scope of the study**

The current study focuses on the asset bubble phenomenon and more particularly on the real estate bubble issues. Literature review represents the numerous theories based on the concepts of different authors, who focus on the topic of crisis and that of asset bubbles. Empirical study aims to provide an example of how a real estate bubble may arise in a particular country and to demonstrate how well the theories suggested by the authors may be implemented in a real situation.

## **1.5. Structure of the Thesis**

The present thesis consists of four main parts: introductory part, literature review, empirical study and conclusive part. Part I is an introduction. In this part the main idea of the thesis is stated, as well as the author's motivation, the scope and the methods of research, and the structure of the given thesis.

Part II is a review of literature. This part consists of three chapters. The chapter 2 discusses the definition of a crisis, the factors that lead to it, as well as the numerous theories of crises, the fundamental factors and the behaviouristic aspects, which may lead to a crisis. Chapter 3 focuses on the issues of the real estate bubbles and asset bubbles in general. Here different types of asset bubbles are discussed, including the signs of bubble formation and the real estate cycles. The possible risks for the real estate investments are outlined and analysed. Chapter 4 concludes the theoretical part and represents the summary of the two previous chapters.

Part III is an empirical study, which is based on the case study method. Case study method is an efficient method to study qualitative phenomena. Part III consists of the three different chapters. In chapters 5 and 6, the cases are presented and described. Chapter 5 provides the reader with the detailed background information concerning the crises in Finland, Sweden, Norway and Denmark during the time of the Scandinavian crisis in the 1990s. Here the pre-crisis situation in the given countries and triggering factors of the bubble are described. Chapter 6 describes the cases of the three Baltic countries and Iceland before, during and after the global financial crisis of 2007-2008. Chapter 7 aims to outline the lessons we can learn from the cases. This chapter represents a cross-case analysis in which graphical methods were used to demonstrate the creation of the bubbles in the periods of the booms.

Part IV summarises the thesis and discusses the main results of the study, including its reliability and suggestions for the possible further research.

## Part II – Literature Review

### 2. Financial crisis and its definitions

Financial crisis can be described as a disorder in the financial markets characterized *inter alia* by the declining prices of assets, real estate and debtor's insolvency. Financial crisis causes considerable perturbations in the economy and renders the distribution of capital more difficult. Most crises can also run out of the national borders so it is harder to allocate capital even on the international level (Eichengreen & Portes 1987).

According to Mishkin (1992) crisis can be defined as a situation when financial markets lack the capability to channel funds in an efficient way due to adverse selection and moral hazard opportunities. There are five factors causing financial crisis: 1) increases in interest rates, 2) decrease of stock markets, 3) high level of uncertainty, 4) bank panics, and 5) the unpredicted declines in the average level of prices of goods and services in the economy (Mishkin 1992). Figure 1 below represents the events within a typical financial crisis.

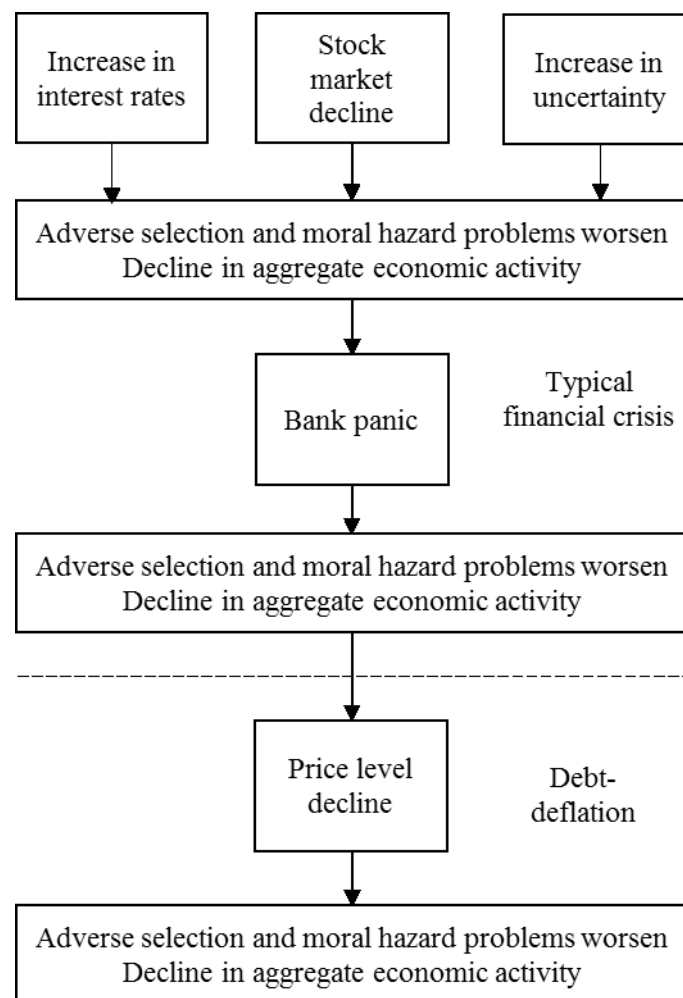


Figure 1. Sequence of events in a financial crisis<sup>1</sup> (Mishkin 1992)

<sup>1</sup> If the events below the dash line occur, crisis develops into debt-deflation

**Increases in interest rates** usually trigger the following troubles: it becomes harder to get a loan as soon as higher credit rates cause higher adverse selection, higher interest rates accelerate financial crisis and even a small increase in the interest rates causes a significant decline of banking credit offers (Mishkin 1992).

**Stock market declines** result in the decrease of companies' net worth, lenders are reluctant to lend as soon as the value of collateral declines, levels of protection plunge quickly and losses from loans become more severe. As soon as corporate net worth declines, borrowing-companies take more risk, because they realise that there is nothing to lose. All these factors cause a significant decline in economic activity (Mishkin 1992).

An **increase in uncertainty** triggers collapses of financial institutions, as soon as information is becoming asymmetric and adverse selection worse. As a result, lenders are not willing to lend money anymore (Mishkin 1992).

The source of the **bank panic** is asymmetric info. In panics, depositors quickly withdraw their deposits as soon as they lose confidence in the financial institutions. Asymmetric information is rather critical and depositors can withdraw from the solvent and insolvent banks, as soon as they hardly can differentiate between them (Mishkin 1992).

Unpredicted **declines in the price level** cause the decrease of the net worth of the companies. The value of the firms' liabilities in real terms inclines sharply. Lenders face moral hazard problems and that triggers the decline in investment and economic activity (Mishkin 1992).

## 2.1. Crisis concept

History defines every moment as a specific one and unparalleled. Historians hardly believe that any moment could be repeated twice. Economists on the contrary, believe that clear patterns exist, and that concrete events tend to result in a similar way. The business cycle is a common characteristic of the free market economy. Consequently, inclines in investment in plant and equipment lead to incline in household income and the rate of growth of the national income (Kindleberger & Aliber 2011, pp.24–25).

For instance, Minsky's model is used widely to interpret economic crises in many countries. According to the Minsky's model, changes in the supply of credit are pro-cyclical: supply of credit during the boom period is increasing and during the bust period is decreasing (Minsky 1992, in Kindleberger & Aliber 2011, p. 25).

In the time of the boom period investors are more sanguine about the future, lending becomes rather active and investors look for the different type of investments. Consequently, investors' risk aversion declines, they become more eager to take loans and their behaviour turns riskier (Kindleberger & Aliber 2011, p.25).

When the economic situation becomes gloomier, investors tend to lose their optimism and become more careful. Lenders' losses increase significantly, as well as their carefulness. As a result, it is possible to derive that the supply of credit inclines in the boom time and declines in the gloomy time of the bust, which leads to vulnerability of the economic system and at a long last leads to the financial crisis (Kindleberger & Aliber 2011, p.25).

Shock may happen during the time of a military conflict or at the end of it, during a bumper harvest or crop failure or with an introduction of a new invention. For instance, unexpected change of monetary policy could be a major shock. In case of an abnormally huge shock, opportunities for the anticipated profit enhance situation in at least one major sector of the economy and cause the GDP' profit share incline (Kindleberger & Aliber 2011, p.26).

Minsky's model reckons that an enlargement of credit opportunities stimulates the boom period. During pre-banking centuries - seventeenth and eighteenth, the speculative boom stimulated financing. As soon as banking started to develop, the supply of credit and their liabilities started to expand. In the beginning of the nineteenth century banks increased supplies of bank notes and added to the deposits of private investors (Kindleberger & Aliber 2011, p.26).

According to Adam Smith, this process is called "overtrading". Of course this term is not quite precise and it involves speculation of the increase in the prices of assets or commodities, an overvalue of the future return, or "excessive leverage". This speculation includes acquisition of commodities to gain a profit from a sale of capital assets and their expected increase in the price (McCreadie 2009, p.95; Kindleberger & Aliber 2011, p.28).

Financial assets are acquired for resale purposes and never for investment purposes. This euphoria causes too bullish behaviour in the market concerning the economic growth and the rate of increase in corporate profits and influences the companies involved in production and distribution (Kindleberger & Aliber 2011, p.29).

## **2.2. Origin of crises**

During the preceding three decades, developed countries have mainly concentrated on the growth of corporate profits by cultivating affection for the material goods, consumerism and consumption. All these factors led to populations living beyond their means and massive increases in the public, household and governmental debts. The increased globalization resulted in much shorter product cycles, deregulated finance, funded technology and innovation, and increased levels of production (Matthews & Tlemsani 2010).

Matthews & Tlemsani (2010) suggest the term "The Tower of Babel<sup>2</sup>" to describe the modern financial system, based on assets of speculative value, and not the real value.

Matthews & Tlemsani (2010) further note that constant search of competitive advantage in the capitalist economy resulted in big volumes and diversity of products and services. The flipside is, in this quest for a competitive advantage, many global companies unfortunately moved into risky debt based speculations.

Every crisis is characterised by the liquidity crisis and insolvency crisis. Matthews & Tlemsani (2010) suggest that the postulates previously held as undisputable truths, are no longer valid, if not radically false.

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<sup>2</sup> A tower built in an attempt to achieve heaven, which God frustrated by making its builders speak different languages (Oxforddictionaries.com 2016).

Matthews & Tlemsani (2010) suggest that the following postulates are falsified:

- 1) That markets are efficient;
- 2) It is possible to deregulate capitalism effectively;
- 3) The interventions of governments are inefficient;
- 4) The goal of every company is competitive advantage;
- 5) Supply is more important than demand;
- 6) Decisions are rational;
- 7) It is possible to overcome depressions with monetary policy;
- 8) The probability of extreme events can be ignored;
- 9) It is possible to diversify the aggregate risk;
- 10) The financial sector creates wealth;
- 11) The concern of globalization should be growth, not distribution;
- 12) There are sustainable growth rates in the world;
- 13) The debt may exceed the discounted value of future GNP.

All these 13 points describe the Chicago School view, and they have been influential since their postulation in 1950s.

Market efficiency is based on the maximization of all possible benefits of free exchange. Stock markets' efficiency stems from the assumption that stock prices include full information about the company, and that, in its turn, allows stock prices to move freely (Matthews & Tlemsani 2010).

Matthews & Tlemsani (2010) suggest that the point 2 and 3 follow from the point 1: if prices are flexible, there should be full employment. According to Matthews & Tlemsani (2010) the latter may not necessarily be correct: "Markets are not efficient informationally and often lead to persistent unemployment".

Point 4 suggests that companies' main goal is shareholders' value maximization. Point 5 serves as an explanation of supply's importance for the economic growth. Point 6 assumes 1) that individuals tend to act rationally and use all available information to maximise their utility; 2) everyone has equal access to information. In truth, irrationality prevails in the markets: in mortgages, in securities, in the derivatives and in the banking industry as a whole. Moreover, there is no equal access to information: individuals have access to different and limited information. Point 7 is derived from the point 6, and states the only role of governments and central banks is to limit money supply in line with growth of the economy (Matthews & Tlemsani 2010).

In fact, when we have to deal with a credit crunch, monetary policy proves useless. As soon as money is lent at unconscionable rates or saved up for the future, that itself creates big fluctuations. Point 8 is only acceptable in case of extreme events, but not for the common situation in the economy. It assumes that in financial markets prices follow normal distribution, with limited variance; price models of complex assets used too little data; rely on recent data, which reflects increasing prices. Global financial crisis of 2008 have falsified the point 9. It was demonstrated that risk represents by itself not the private, but rather public good. Financial sector is a complicated net of obligations, which are interconnected with each other (Matthews & Tlemsani 2010).

Assumption that individual risk is diversifiable as opposed to the market risk as a whole ignores the fact that there exists interconnectedness between financial institutions and possibility of bigger collapse. Or as Matthews & Tlemsani (2010) suggest the "Financial Tower of Babel Failure".

As a rule, bailouts are financed from taxes, and government deficit in the future will be financed from taxes as well. Concerning point 10, Matthews & Tlemsani (2010) believe that creation of value has been exaggerated. Matthews & Tlemsani (2010) consider that the basic roles of financial sector is to redistribute savings, channel investment to high return uses, hedge risk and organize liquidity.

Matthews & Tlemsani (2010) compare the financial sector to a casino, making the idea of market efficiency bizarre. Poor regulation and greed were evident in the past crises and will be evident in the future.

According to Matthews & Tlemsani (2010) points 11 and 12 are not convincing enough and cannot be used to moderate differences in income and wealth.

During the past crises in Europe and North-America unsold goods, unemployment and deflation rates were increasing. However, central banks continue to reduce base rates and real rates of interest rise, because real rates of interest are nominal rates minus the rate of inflation. Liquidity cannot reach businesses, because financial institutions are unwilling to share business risks, banks are also averse to the business risk and have a habit of Ponzi financing (Matthews & Tlemsani 2010).

Matthews & Tlemsani (2010) note that the crisis becomes deeper, when debtors get more indebted and the real rates increase making the burden of debt rise. The authors describe risky portfolios as "pyramids of leveraged assets". These leveraged assets are symbolic assets, which do not create wealth, but only transfer property rights like Ponzi-type transactions.

The most evident causes of crises are the inadequate margins of safety kept by the financial institutions. Credit rating agencies tend to underestimate the risk. Distribution is legitimised by de-regulative measures (Matthews & Tlemsani 2010).

Another reason is that the specially created models determine the prices of symbolic assets. The portfolios only create imagined wealth. Deregulation permits to transfer risk from the banks to the SPVs (special purpose vehicles), this procedure eases the creation of new assets and debts. As a result, banks are not concerned with risk since both interest and principal would be repaid to the final buyers of the collateralized assets (Matthews & Tlemsani 2010).

Matthews & Tlemsani (2010) note that the financial institutions are more concerned to sell the assets they have created and to make profits from the sale of these assets. They compare the securitization process with bricks and mortar to build "the Financial Tower of Babel".

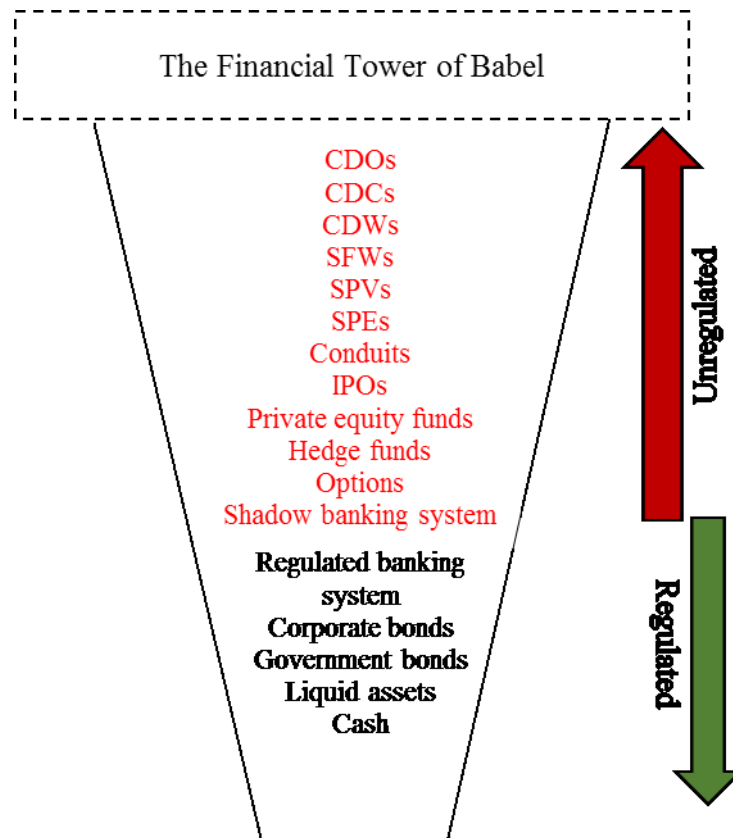


Figure 2. The Financial Tower of Babel (Matthews & Tlemsani 2010)

Matthews & Tlemsani (2010) describe the process of securitization as follows: at first, diversified portfolios are created; then, these portfolios are divided into collateralized debt obligations (CDOs) by the type of risk: less risky assets have lower interest rates, more risky assets have higher interest rates, but will be redeemed last. These diversified portfolios are then transferred to a special purpose vehicle (SPV), which is not included in the balance sheet. After that, these portfolios are sold by the SPV. The buyers can protect themselves by holding credit default swaps (CDS). Next level is a combination of credit default swaps and collateralized debt obligations into portfolios in order to sell them. Investors buy these portfolios by selling short-term asset-backed securities (assets backed by the CDSs and the credit default obligations, the CDOs). If there is a gap between the credit default swaps and the short-term asset securities, this gap can be covered by the short-term repurchase agreements (REPOs). This is done through the sale of CDOs or CDSs today with the promise for the future repurchase. Banks always agree to finance shadow-banking system. As a result, even regulated banks are hit by the unregulated banking system. In every stage of this process sellers and fund managers receive their commissions and they are interested to create as many deals and imagined assets as possible. Rating agencies assess the default risks. However, they accept data provided by the sellers at face value without any control and their fees are paid to the sellers of collateralized debt obligations. There is a global market where all these assets are sold. Even sovereign wealth funds are presented on this market (Matthews & Tlemsani 2010).

Matthews & Tlemsani (2010) declare that the risk cannot be diversified, but only shared. Based on that, they suggest that risk is a public good as a result of all defaults and bailouts, funded by the taxpayers.



Matthews & Tlemsani (2010) notice that the governments and the financial institutions prefer to layer risk and create more difficult layers of assets. The first layer of assets is usually mortgages. The second can be used to purchase the debt of the first layer. Second layer assets are bundled into the third layer assets. The third layer of assets is used to fund the leveraged investors, who are already leveraged. Eventually, the strength of such pyramid is equal to the strength of its first layer and its first link - sub-prime mortgages (Matthews & Tlemsani 2010).

The value of securitized assets depends on the trust of the public. When public loses its confidence, the collapse of these complex assets is imminent. The loss of value of these assets leads the diminution of investors' optimism. As a result, assets of private companies and banks decrease in value and it is necessary to deleverage them in order to improve balance sheets and reduce debt (Matthews & Tlemsani 2010).

Usually problems begin in the subprime market and in the mortgage-based securities. Thereafter follow the insolvencies of the big banks and corporations. As soon as the financial sector is global, the problems spread globally as well. Recession and economic collapse follow as institutions try to improve their balances. As a result, recovery takes much more time with several smaller declines before the stable recovery takes its place (Matthews & Tlemsani 2010).

Matthews & Tlemsani (2010) notice that the crisis becomes deeper as debtors' level of debt increases and interest rates increase as well. This process is known as a liquidity trap or the "credit crunch".

### **2.3. Financial instability hypothesis**

According to Minsky (1992) the economy is described as the capitalist economy in which movable and immovable property and complex financial system prevail.

The capital development of this economy comes from trading the present money for the future money. The present money is spent for product resources. The future money represents "profits" that will accumulate in the capital asset-owning companies. Thus, it is possible to say that during the financing process the control over items in the production capital stock is financed by liabilities (Minsky 1992). Minsky (1992) states that for each economic unit, liabilities on the balance account determine a time series of earlier payment commitments. Thus, there is a linkage of the past, the present and the future. This linkage is based not only on the labour force and the capital assets' characteristics but also on the financial relations. The structure of financial relations and the fluctuations within this structure are connected with the creation and the ownership of capital assets. Financial instability theory assumes that banking activity is a profit-seeking activity. Financial institutions are "merchants of debt". Their way of innovation is based on the acquisition of assets and offering of liabilities. This characteristic nullifies the central hypothesis of the Orthodox Quantity Theory of money according to which "money" is a constant item and its circulation is also constant. It is thus possible to make a conclusion that the money's supply is in a linear proportional relation to the well-defined price level (Minsky 1992).

Minsky (1992) defines three different income-debt relations for economic units: hedge, speculative and Ponzi finance.

Hedge financing units are able to fulfil all their conventional obligations by their cash flow payments. Units with a high percentage of liability-structured equity are usually hedge-financing units. Speculative units require prolonging of their liabilities. They can fulfil their payment

commitments with their liabilities. To the cohort of hedge units belong governments with floating debts, corporations with floating issues of short-term debt instruments and banks. Ponzi units are not capable to fulfil their liabilities: either it is the redemption of the face value of the debt or the interest due on the unpaid liabilities by their cash flow from operations. Units, which belong to Ponzi unit cohort, can sell assets or lend. Lending and selling of assets to redeem interest on the common stock decreases the equity of a unit, even if liabilities and the commitment of future incomes increase. Ponzi unit usually decreases the safety level that it offers to its debt holders. The economy is balanced when hedge financing dominates. Speculative and Ponzi-type finance leads to misbalance and deviations (Minsky 1992).

According to the first theorem of the financial instability hypothesis, there are financing regimes under which economy is balanced, and financing regimes under which it becomes unbalanced. The second theorem assumes that after a period of long booming, the economy turns from the financial relations which make it balanced or stable to the financial relations which cause instability. After long periods of prosperity capitalist economies transit from a financial structure where the hedge finance units prevail to a structure with increasingly speculative and Ponzi finance units (Minsky 1992).

If one takes a look at any particular economy where the speculative financial units prevail, which is in state of inflation and where authorities make attempts to get inflation out of the way with the help of monetary policy, one can see that in this economy speculative units quickly turn into Ponzi units and the net worth of previous units rapidly disappears. Units with deficiency of cash will be forced to make position by selling it out. This will most likely cause the collapse of asset value. The financial instability theory does not rely on the outside shocks to generate business cycles. According to this theory, business cycles consist of intrinsic dynamics of capitalist economies and regulative measure to support the efficient working rhythm of the economy and its reasonable constraints (Minsky 1992).

## **2.4. Bank failures**

Banking crises may result when the *per se* solvent banks have to deal with massive unwarranted withdrawals. Proponents of the idea that banking systems are inherently defenceless to such distress often highlight that the structure of banks, where depositors are the first in line to receive all their deposits, has a trend towards the worsening of unwarranted withdrawals (Calomiris 2007).

Unwarranted withdrawals can happen for many reasons. One of the reasons is the depositors' reaction to and imitation of each other's withdrawal behaviour. This imitation, however, may also be stepwise and partial. Another reason is, when depositors receive a signal that various banks are insolvent, without knowing which ones in particular these are. In this situation, the depositors may start to withdraw money even from the solvent banks. Their reasoning is quite simple – they have no will to risk their funds. External shocks to the supply of reserves in the banking system may cause excessive demand for cash from the particular depositors who are related to the existing reserves. These situations may be the reason of the banking panics. Sometimes foreign exchange risks force depositors to convert to cash and sometimes supply and demand shocks may be the result of the government policy affecting the reserve market (Calomiris 2007).

"Fundamentalist" approach is completely adverse to the "panic" approach. Here, internal weakening of the bank condition leads to the collapse. This point of view is based on the fact, that losses of the bank's borrowers can cause losses to the banks. Consequently, several banks may go

bankrupt and lead other troubled banks to cut the supply of loans and deposits with the purpose to hedge default risk and rebalance portfolios in a balanced market. Endogenous reduction of deposits and credits and the unwarranted reductions limit the supply of money and loans. Consequently, they both accelerate the macroeconomic decline (Calomiris 2007).

According to the fundamentalist conception, banking misfortune can lead to greater economic decline even if shocks did not emerge from the banks. Banks tend to enlarge macroeconomic shocks with their careful decisions of cutting the supplies of loans and deposits as a responsive measure to unfavourable shocks. Even if banks do not take active measures to resist the shock and even if depositors avoid panics, fundamentalist conception reckons that banking behaviour may still worsen the situation (Calomiris 2007).

Different points of view concerning the ground of shocks have great use for the policy, especially if they may be used to motivate efficient policy of banking protection. Panic view instructs how to avoid withdrawal risk. However, according to the fundamentalist view, banks are considered essentially stable and they cannot be victims of unwarranted withdrawals, nor a reason for macroeconomic shocks (Calomiris 2007).

Fundamentalist conception reckons that banks' market discipline is not governed by chance and preserves efficient work of the banking system. According to the fundamentalist view, it is advisable to avoid government protection of the banks, because that helps to protect market discipline in the banking industry. Actions of market discipline protection motivate banks to preserve a decent level of risk management, even if deposit and credit shortenings may worsen business cycles (Calomiris 2007).

Both standpoints of bank affliction do not suggest universal decisions. One or another point of view may be more appropriate in the different case or situation, and both fundamental and unwarranted withdrawals approaches may play their part in the different banking collapses (Calomiris 2007).

All recent banking crises were easily identifiable by the forerunning shocks. However, those shocks had a little influence on the bank failures. Recent banking system experience a huge number of banking crises, many bank collapses, and significant losses by the troubled banks. All these collapses bring catastrophic expenditures for the taxpayers who are forced to support the bill of bank loss. Contrary to plan or expectation, the safety net of the government, designed to protect from the risks seems to become the primary cause of the banking volatility, as soon as excessive government protection declines the effect of market discipline, encourages banks to take additional risk, and contributes to unskilled risk management (Calomiris 2007).

## **2.5. Herding**

The most common definition to describe herding is a set of behaviouristic patterns similar in a given group of individuals. Quite often herding may lead to systematic wrong decisions, which are taken by the huge groups of people. Thus, herding is very close to those phenomena as bubbles and non-trustworthy changes with the lack of information (Devenow & Welch 1996).

There are two different opinions concerning herding: non-rational and rational views. According to the non-rational point of view, investors' behaviour is similar to the behaviour of lemmings. Rational point of view, assumes that decision-making process is misrepresented by information

difficulties. According to the intermediate point of view, decision-makers are near-rational and cannot avoid information influence caused by the other parties (Devenow & Welch 1996).

"Rational herding" literature tries to examine this phenomena, why several market participants are influenced by the other agents' behaviour. Following the model like payoff externalities might serve as an explanation of these effects. According to this model when one individual approves certain behavioural patterns, probability that other individuals will approve the behavioural patterns increases significantly. According to the principal-agent model managers in order to save their reputation for the times when adequate information on markets is lacking may be willing to "hide in the herd" to be more predictable, or to "ride the herd" so that to maintain their quality. Cascade models suggest that agents acting in the markets in the last instance copy behaviour of foremost agents. The cascade model applies when private information is easily accessible. Agents gain useful information, when they follow the behavioural patterns of the other agents, as soon as the last do not care of their private information. As a result, investor who possess some negative information ignores his own opinion and follows the behavioural pattern when he makes investment decision if he sees that three investors previously had taken the same decision (Devenow & Welch 1996).

Quite often, the mistakes of investors are reflected in the price of assets if they are doing collective mistakes. On the other hand, individual's behaviour does not affect market prices. If market participants do not commit similar psychological blunders, their actions neutralize each other and market remains efficient. At the time of bullish market, short-sighted investors take decisions concerning the purchase of specific assets, not based on fundamentals, but based on the earlier observations of the price inclines. Those investors also prefer to imitate others behaviour rather than elaborating their own strategy, they tend to ignore the fact that prices were already quite expensive. Those investors have an obsessive idea in their mind that the price of the asset will be growing as soon as people invest in them. They have a strong faith that it is worth it to join the game that promises rapid increasing trend. This mechanism is understand as "feedback trading". Thus, a considerable group of like-minded investors triggers the mechanism to start working as a self-fulfilling forecast. Upward trend attracts a huge amount of the new investors and makes the prices to achieve record levels. Certainly, this activity is encouraged by the expanding euphoria in the market bullish comments of experts, and by the rumours in the media, which describe the tremendous growth of the prices (Szyszka 2010).

Rational investors take the advance decisions to acquire a high amount of assets on the base of fundamental grounds. Rational investors anticipate that soon or later herding of irrational investors will cause discrepancies from the true value of the asset and on the base of this information; they are able to sell the asset with profit. Overall, professional investors are also interested in the continued growth of the prices rather than its decreases even if they realise that the prices are overvalued (Szyszka 2010).

If the situation is relatively imprecise, there is a greater probability that the decision makers ignore private signals and copy the behaviouristic patterns of other players. Correspondingly, if private signals are of a high quality and better than the information based on the behaviouristic patterns of other market participants. Thus, it is possible to conclude that the information cascades occur with the greater probability in the markets where the amount of credible information is lower. If costs to acquire personal information are rather high investors tends to rely more heavily on the behaviour of the other market players. The hardest is the process of the decision making the more is the probability that investors will try to imitate the behaviour of others. The increase of

complexity of available financial instrument may trigger the occurrence of information cascades (Szyszka 2010).

Overall, herd behaviour usually appears when managers want to improve their reputation as decision makers. Other factors that influence herding are unpredictable components to investment outcomes. Herding is a problem if outside opportunities for managers are unappealing and when their compensation is based on the absolute evaluation (Scharfstein & Stein 1990).

## **2.6. Disaster myopia and perverse incentives**

Very often commercial real property is highly leveraged. Developers are forced to operate with a limited capital so that to diminish their possible risks and to transfer its biggest part to lenders. Most common ways of protection from risk are loan-to-value ratios, guarantees, takeout commitments for longer-term financing, and strict loan agreements (Herring & Wachter 2003).

When overheating is felt on the real estate markets estimations standards vary. During the overheating times, quite often is noticed that phenomena as the "disaster myopia". Disaster myopia forces banks to become defenceless to the different collapses when nobody is able to take an aware decision concerning the increase of insolvency exposure (Herring & Wachter 2003).

Lenders tend to believe that there is nothing wrong with the acceptance of a higher loan-to value ratios, worse guarantee promises, and more insecure agreements. They tend to believe that they are not increasing their risk of losses with that behaviour. Excessive competition from other disaster myopic lenders stimulates reasonable lenders to agree with the less secure standards or leave the market. In this situation, developers of the real property increase risk levels of their projects, and tend to exploit their creditors as much as possible. When the probability of the project's default is becoming evident, developers may be reluctant to save the project as soon as that will be beneficial only for their creditors (Herring & Wachter 2003).

Controversial information between bank lenders and real property investors and rather high leverage may motivate real estate investors to take more risk within real property investments. Banks may also take imprudent decisions. They may ignore collapse's risk for the reason that of they feel protected if collapse happens (Herring & Wachter 2003).

Financial institutions are quite defenceless against a liquidity shock, as soon as they acquire non-transparent hardly marketable assets that they hope to redeem at par. Depositors understand that banks are highly leveraged and during the shock time a quite small percentage decrease in the values of assets, will cause a large percentage change in net worth, perhaps making the bank insolvent. As a result, depositors may start to redeem their deposits forcing the bank to sell assets at the discounted prices or to borrow at an interest rate, which is higher than reasonable rate (Herring & Wachter 2003).

In nearly every country, there are safety nets to protect depository institutions against a banking collapse. Quite often safety nets, which include deposit insurances and other warranties, weaken market discipline. When we encounter with a state-owned banks that is more noticeable. In the state-owned banks, creditors think that they are secured by the state guarantee and they are reluctant to monitor risk levels of their bank's decisions. In the private banks, insurance of deposits plays the same part. It discourages insured depositors to verify bank-lending decisions. Uninsured creditors of large banks, on the contrary, may assume that there is implicit deposit protection on the base of that fact that lender-of-last resort assistance is provided (Herring & Wachter 2003).

Lenders-of-last resort routinely lend to banks after the banks' insolvency. As a result, creditors without explicit deposit insurance tend to withdraw their deposits before bank's insolvency. Authorities quite often avoid liquidating the bank but prefer providing support and keeping bank open. Another possibility could be to sell the bank with all its liabilities to another bank (Herring & Wachter 2003).

Availability of insurance may discourage depositors to hinder the insured risk from occurring. As a result, bank may substitute riskier assets for safer assets, because it is clear that the depositors will not request greater compensation when greater risks are taken (Herring & Wachter 2003).

Until equity is higher than the potential loss, shareowners will be avoiding risk exposures. When equity falls relative to potential loss on risk exposures banks start to take increasingly greater risks. The main cause for that is the importance of return's distribution for the shareowners, which happens at the termination point. They gather all positive returns above the termination point. However, all returns, including the negative are shift below this point. When bank cannot cope with losses anymore workout loans become especially problematic. In this situation, banks may be willing to prolong a payment period of workout loan for a distressed borrower (Herring & Wachter 2003).

Workout loan's extension is an extremely attractive option for the bank. Due to that option, bank can delay the costs of writing down the net assets value of its outstanding exposure. By using this option banks produce manipulations with their accounts to hide the worsened condition of assets by minimizing loan losses. As a result, assets, which are valued higher than the market value, are sold and assets, which value is lower than the net book value are kept. Perverse incentives also explain very well regulatory authorities' behaviour after the collapse of real property prices. Supervisory authorities are reluctant to take any measures when they do not feel any pressure of a bank run. That creates a conflict of interest between supervisory agents and taxpayer principals. When values of commercial real estate collapse there is a long gap between the times when bankruptcies are defined and solved. Supervisors may be afflicted by the strength of the crisis and lack appropriate resources to support insured depositors or to make good guarantee arrangements. Quite often real property crash overlaps with a decrease in total of all incomes in an economy, without taking inflation and taxes into account. In this case, government may be unwilling to increase the fiscal deficit (Herring & Wachter 2003).

Moreover, the supervisory authorities cannot imagine the magnitude of the crisis. They are afraid that additional questions concerning their mistake may appear. They may be concerned that when a number of bankruptcies becomes evident to the public, it may ruin confidence and strengthen financial crisis's force. Supervisory authorities usually have a hope that real property prices might return to levels reached before the collapse, and time delays may help them to cope with the problem. Quite often supervisory authorities prefer to wait and speculate that the decrease of real property prices will be stopped. That behaviour and unwillingness of authorities to take measures when the banking system is exposed to insecurity creates another motive for herding. Bank understand that if it takes unpredictable risk exposure it could face strict measures, including termination. On the contrary, if it keeps its risk exposures in line with other banks the regulatory measure will not be that harsh. The supervisory authorities cannot force all banks to follow strict discipline and terminate all of them. On the contrary, authorities will try to make the effects of shock milder in order to preserve the banking system (Herring & Wachter 2003).

### **3. Real property bubbles**

Due to liberalization and globalization factors, it is becoming easier to allocate resources in the capital markets. Moreover, both factors magnified the role of the financial cycles. These cycles are the cause of heavy volatility in the prices of assets. Too heavy volatility puts the level of unpredictability to increase and causes crises. Especially heavily are usually touched emerging markets. As a rule, booms are created by a wave of over-optimism (Senhadji Semlali & Colllyns 2002).

Too sanguine market participant underestimate their risks, oversupply of credit, excessive inflation of asset prices and overinvestment in physical capital. Real estate market plays a core role in the financial cycles. Increase in the prices of the real property forces banks to lend more. Large inflows of capital can worsen the situation and aggravate credit cycles. Too weak regulation of the financial sector combined with a sudden forceful flow of capital can end in terrible financial crisis. When we encounter with the environment, where prevails imperfect information, market participants undervalue or overvalue the fundamental price of the real estate. Thus, market participant are becoming too sanguine and believe in the never-ending growth of the price (Senhadji Semlali & Colllyns 2002).

Experienced investors are able to perceive these deviations in the efficient financial markets. These investors continue to sell real property short until the prices return to the fundamental value. Unfortunately, there is no futures and options markets for land, and sanguine market participants are able to stay in the market until prices are in upcoming trend and enough financial inflows is available. Construction lags are relatively long and they prevent to achieve a rapid increase in supply, as a result, a price bubble appears. The prices start to move away more and more from their fundamental value, and this process triggers price inflation. In one sudden moment, prices plunge quickly. This happens because of the moral hazard, which worsens the situation and causes expansively high volatility in the real estate markets (Senhadji Semlali & Colllyns 2002).

As a rule, moral hazard is a result of slack financial control, which permitting banks to take too unsafe loans without the appropriate estimations of their funds. Moral hazard causes extreme risk-taking, overinvestment and enormous asset prices. When many risky investors are looking for the loan opportunities arises a problem of the asymmetric information or the adverse selection. During the periods of economic booms, adverse selection gives an additional boost to the bubble. Rapid growth in the real property prices increases the supply of credit to the real estate sector and that process leads to the incline in the real estate prices. Similarly, when real estate prices decline, the supply of the credit for the real estate industry declines (Senhadji Semlali & Colllyns 2002).

When real property prices are in a downtrend, bank capital decreasing as well, as soon as the banks start to reduce the value of loans backed by real property and the value of their real estate assets. A decrease in the prices of real property reduces the expenditures of default and increases the perceived risk of loan taking for the real estate acquisition. When the banking industry becomes weaker, regulatory measures, concerning land provisioning are becoming stricter and that causes additional inconvenience for investors (Senhadji Semlali & Colllyns 2002).

#### **3.1. Bubbles and crises**

Bubbles, crashes and financial crises are becoming rather widespread in the recent time. Brunnermeier & Oehmke (2013) suggest that there are two main phases in all financial crises: 1)

run-up phase, when bubbles form, and 2) crisis phase, when bubbles bursts and risk materialises. Both phases cannot be perceived as something separate. On the contrary, they represent two factors, which describe one phenomenon.

Usually formation of every bubble is accompanied with a decent level of unexpectedness. Even factors, which may be used against the bubble formation and increase in asset prices becoming useless, when the bubble appears. During the periods of boom, prices of the assets may be non-corresponding to historical data. Market participants may also blindly ignore this data and believe that today situation is different that it was before. The bursting of credit bubbles leads to more deleveraging, but to every housing bubble precedes credit boom (Brunnermeier & Oehmke 2013).

Bubbles can be explained as a huge overestimation of financial or real assets. Of course, not every overestimation is a bubble, but there exist diverse definitions of this term as a bubble. It is necessary to highlight that overestimations are associated with the bubbles that have particular features. For instance, asset valuation in bubbles is often explosive. Periods in which asset prices exceed fundamentals are associated with the bubbles (Brunnermeier & Oehmke 2013).

Bubbles provide a great interest to economists, as soon as the prices affect allocation in the economy. Presence of bubbles may have negative impact on investment incentives of the market participants. Presence of bubble may also create overpricing and overinvestments. Real estate bubbles may lead to inefficient construction of new housing. Bursting of the bubble may slow down significantly economic activity and have a negative impact on the financial institutions and companies. As soon as disturbing effect from the bubble can be tremendous, it is extremely important for economists to understand the mechanism of the asset bubble creation, and why asset values are able to fluctuate from their fundamental value so strongly (Brunnermeier & Oehmke 2013).

During all the recent financial crises bubbles preceded to a collapse or to a default. Quite usually, the main reason of bubble origin is agency relations in the banking sphere. Money, borrowed from banks, used to make investments into assets with the higher risk rates. These assets are quite attractive, as soon as investors can easily avoid unnecessary expenditures in the countries with low payoff by not meeting the legal obligation on the loan. This situation forces the investors to increase asset prices (Allen & Gale 2000).

It is possible to differentiate three distinct phases in the origin of bubbles. First phase starts when central bank initiates the procedure of financial liberalization. As a result, amounts of lending offers increase. After that, real property and stock prices increase. This increase continues for several years as bubble inflates. Second phase, is characterised with the burst of the bubble, and that leads to the quick plunge of asset prices. Usually burst of the bubble happens in a very short period, which is shorter than a month. During the third phase many companies and agents, who was buying assets at inflated prices in the stock or real estate markets, went into default. Usually this phase is followed by numerous banking and foreign exchange crises. These crises cause serious troubles in the real sector of the economy and have a rather long period (Allen & Gale 2000).

Bubbles can take place in a variety of financial systems, and usually occur when there is significant uncertainty concerning real asset payoff in credit expansion. Financial liberalism usually leads to such level of uncertainty, and policy makers and central banks have to take into account how their decisions may affect the asset prices so that to avoid the bubble (Allen & Gale 2000).



During the periods of euphoria, investors trade the overvalued assets recklessly and as a result, prices increase in an explosive fashion. At this point, more and more investors realise that there is a bubble, but they still have some confidence that it will be possible to sell an overvalued asset to the greater fool in the future. It is relatively difficult to say when the bubble has emerged. There is no known point in time when to start backward countdown and bubble can remain for unpredictably long amount of time (Brunnermeier & Oehmke 2013).

In the periods of bubble existence, portfolio managers may act myopically and pretend to be skilful by doing acquisitions of "bubble assets". Fund managers are buying overvalued assets because not trading might reveal their low skills to spot undervalued assets. Thus, for reckless fund managers delegated investing becomes a positive-sum game and they are able to overcome zero-sum argument that usually rules out the existence of bubbles. Good managers subsidize bad managers, and investors on average earn their cost of investment (Brunnermeier & Oehmke 2013).

The first debt crises and debt forgiveness happened even in ancient Mesopotamia. Merchants provided loans to farmers, but in the case of bad harvest farmers ended up over indebted and that causes massive rebellions and threatened the social order (Graeber 2014).

Brunnermeier & Oehmke (2013) believe that the crises are growing from the environment with the low-volatility and imbalances formed during the boom period materialise during crisis time with greater power.

When crisis erupts, bank depositors and short-term creditors may take out their funding. That worsens the crisis more. Another worsening effect to the crisis is when one bank affects to another as a creditor to the failed institution. This worsening effect is called "domino effect". When one bank is trying to sale or liquidate its assets, this may decrease the value of assets in the other bank's portfolio, and this second bank will be forced to sell its assets. Financial crises occur unexpectedly and recovery from crises takes a lot of time. Bursting of the bubble cause the massive negative effect and after that usually follows the period of deep recession. For instance, manufacturing levels drop very seriously after a financial crisis and their recovery takes a lot of time. Even after the monetary policy measures and recapitalization of the banking system, recovery takes time and is relatively lax (Brunnermeier & Oehmke 2013).

Usually currency devaluation make banking crises deeper, especially if debt is denominated in foreign currency. Banking crises are also major causes of sovereign debt causes leading to default. Typical crises usually include boom periods, which are activated by fundamental or financial innovations and then followed by collapse. Collapse causes amplification mechanisms and that results in economic activity (Brunnermeier & Oehmke 2013).

### **3.2. Types of bubbles**

According to Lind (2009) there are three different types of bubbles: 1) pure speculative bubbles, 2) irrational expectations bubbles and 3) irrational institutions bubble.

In the case of the pure speculative bubble, buyers believe that the price of asset may fall in the future, however right now it is high and there is no need to panic, because the price will be continued for some time. Market participant has a strong belief to sell his acquisition with profit. Bubbles of this type very seldom seen in the real property markets, because of the real estate's significant transaction costs (Lind 2009).

When we deal with the irrational expectations bubbles, market participant tends to strongly believe that the price will be increasing for a long time. The market is overoptimistic and buyers believe that it is reasonable to pay more, because price is not supported by historical patterns or strong evidence. Buyers plan to keep their investments for a longer time, as soon as they suppose that growth will be higher than historical averages (Lind 2009).

In the case of the irrational institutions bubble, the main principle behind that bubble are principal agent problems. Market participants are willing to pay a higher price, because the increase of this price is supported by historical patterns and rather strong evidence. Buyer of the real estate does not plan to have losses when the price declines. Similarly, moneylender also expects to be able to shift the losses to someone else, maybe the government after all. Subprime lending is a good sample of this bubble type (Lind 2009).

Model of the speculative bubble was introduced by Blanchard & Watson (1982). Speculative bubble can rise with a very high speed and then plummet sharply. Typically, this class of a bubble grows exponentially and there are two possible outcomes of this bubble: either it survives or it collapses. If last happens, it would never be able to revive. Speculative bubbles make real effects on the economy, and are not governed by rational behaviour (Blanchard & Watson 1982).

Froot & Obstfeld (1989) introduce a model of “intrinsic bubble”. Intrinsic bubble is primarily affected by dividends. This type of bubble returns in a periodic manner to its fundamental value, it is a very rational type of a bubble and it deeply depends on the expectation of market participants. This type of bubble as intrinsic bubble reacts excessively to the changes in fundamentals (Froot & Obstfeld 1989).

O’Hara (2008) divides bubbles into four different groups, where they are distinguished by the rationality of investors and markets. The figure 3 illustrated below describes in which way bubbles are differentiated by these two factors.

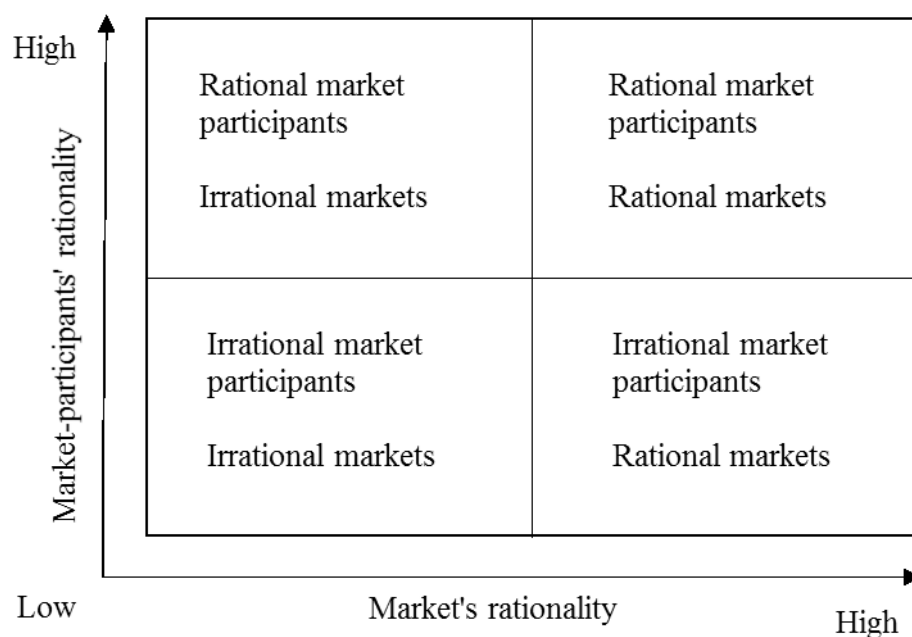


Figure 3. Bubble differentiation matrix. Based on O’Hara (2008)

O'Hara (2008) bubble types:

- 1) Rational market participants, rational markets: of course, the probability of the origin of this type of bubble is rather low. However, on several markets in the extreme cases this situation is possible. This extreme situation may be a result of the asymmetric information.
- 2) Rational market participants, irrational markets: in this situation each trader assumes that he can sell at a higher price, so there is quite rational for him to buy. Nevertheless, not everyone is willing to follow these behaviouristic patterns in the market, but it turns out that the market, as a whole, is irrational, despite the fact that each individual acts in a rational way.
- 3) Irrational market participants, irrational markets: in this situation bubble involves irrational behaviour. Everyone is involved in the speculative fever. In the crowd market participant are becoming irrational and act irrationally.
- 4) Irrational market participants, rational markets: there may be investors in the market, who try to make risk-free profits from price inefficiencies. These investors or market participants wait carefully for opportunities and then attack. This situation forces markets to be rational even if individual on the markets act irrationally.

### **3.3. Signs of financial bubble**

Shevchuk & Drobinko (2015) suggest the core cause of assets bubble creation in the markets is illogical behaviour of investors and growing amount of loans, which are used for the mean of speculation. Investors actively start to use derivatives. Activity in media and the dynamics of prices also play their role. Shevchuk & Drobinko (2015) conclude that common nature is intrinsic for all crises.

Shevchuk & Drobinko (2015) identify following signs of asset bubble:

- 1) Tough incline in prices and strong upswing of assets' rates;
- 2) Massive involvement of non-professional investors in the process of investment;
- 3) Refuse of traditional valuation methods in the market;
- 4) Ignoring of bad news by the market participant or interpretation of them as the good news;
- 5) Outflow of fund from the real sector to the financial sector as soon as speculations are becoming more profitable;
- 6) Increasing amount of investment institutions and funds;
- 7) Wider usage of gearing for the means of trading;
- 8) Huge amounts of trading with derivatives.

According to Okina et al. (2001) there are following factors of the bubble economy: 1) rapid rise of asset prices, 2) overheating of economy and 3) significant increase in amount of loans and increase in money supply.

Okina et al. (2001) see that the following mechanisms triggered the creation of bubble as:

- 1) Aggressive behaviour of financial institutions. Under aggressive behaviour, Okina et al. (2001) understand decreasing profitability of financial institutions and constant financial deregulations. In addition, capital adequacy requirements are playing their role.
- 2) Protracted monetary easing. Monetary easing is caused by the following mechanisms when speculators' funding is reduced by the monetary costs. Thus, speculators engaged in significant investments tend to enter into positions, exceeding their own financial resources;

that is why they usually need funds to cover a gap in settlement when trading numerous financial assets. Moreover, the rise of in stock prices reduces project-associated costs and facilitates funding in capital markets.

- 3) Rise in land and stock prices increase the price of land and stocks held by the companies. Taxation and regulations push land prices higher. Heavy tax burden on transaction gains has the effect of limiting the supply of land by creating an incentive to delay selling it for as long as possible. Proprietors regard the rise in prices as the official benefit of “rents” created by the system.
- 4) Weak mechanism to impose discipline; that is why behaviour of many agents is becoming gradually aggressive. Discipline imposed by shareholders and creditors did not function sufficiently because of cross-shareholding, the use of cost method of the acquisition in accounting and insufficient disclosure. During the stage of the economic development, any mechanism that imposes financial discipline changes gradually. Thus, this mechanism could stay efficient only for a certain period and then after while it stops functioning adequately as the economic environment enters into the period of modifications.
- 5) Self-confidence of market participants in the booming economies is very high. In these economies, these investors continue to follow old patterns and trends.

On the figure 4 illustrated below are illustrated the main factors of the bubble economy. Okina et al. (2001) suggest this scheme for Japan and it is based on bubble formation in Japan in 1990. However, it can be used as the common scheme of bubble creation in any economy.

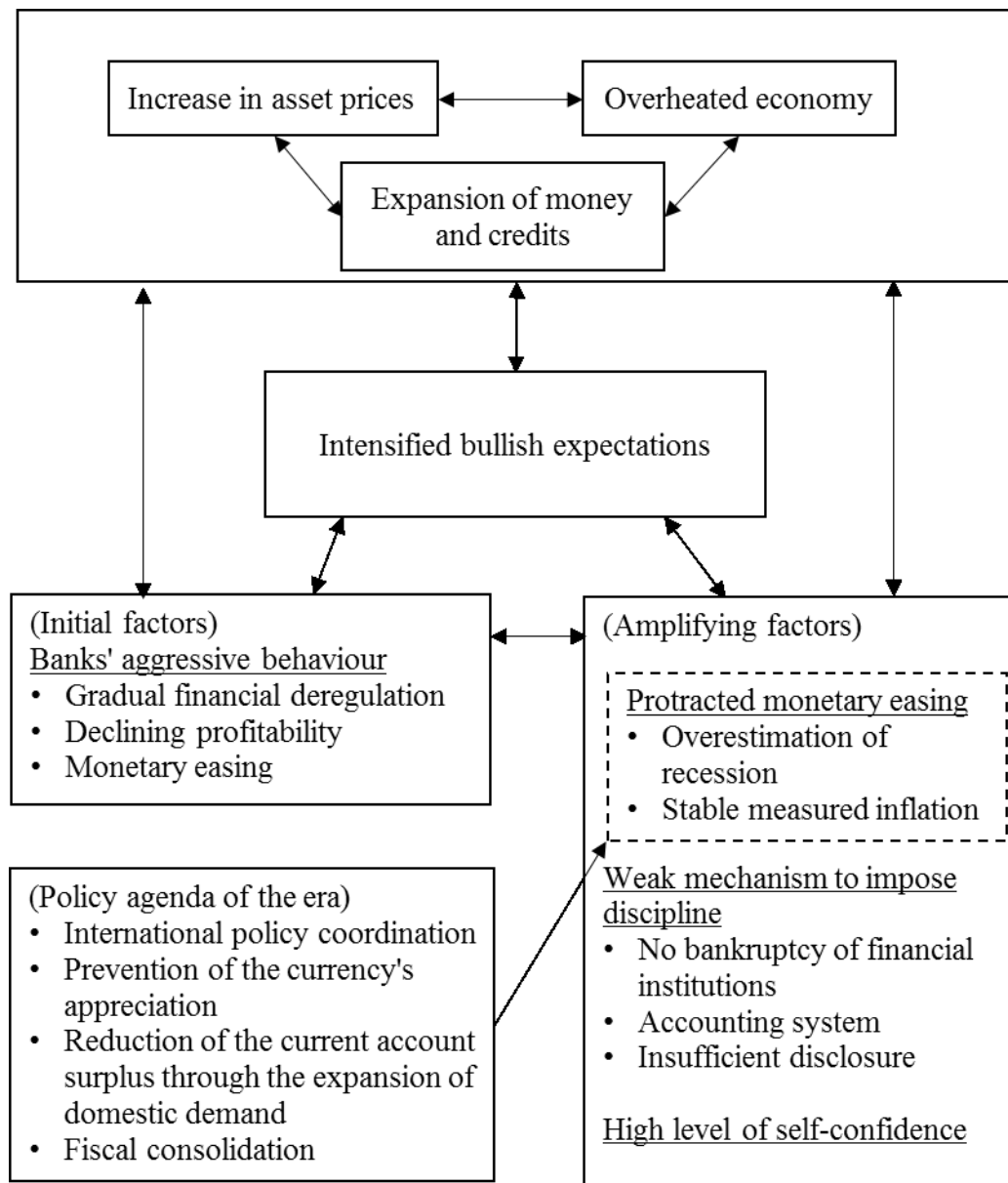


Figure 4. Illustration of the bubble economy. Based on Okina et al. (2001)

According to Chirkova (2013), there are ten signs of the asset bubble. These signs can be implemented either for the financial and stocks markets, or for other asset markets. For instance, real estate markets.

The first sign of a financial bubble is a rather quick incline in prices during the short time. The main characteristic of this incline is an inadequate trend of price development. The intrinsic value of one given asset stays the same, but the price of this asset increases significantly. For instance, when high prices have an influence on the GDP, visibility of the financial success market participants to direct market trends in the higher levels. This last situation happens, as soon as the high prices are perceived as a healthy influence within the economy. There is a lack of

understanding of the market participants that this uncontrollable growth is the true sign of bubble creation (Chirkova 2013).

For instance, when prices on the stock rise, people tend to spend more, last factor has an impact on the companies, and their income starts to increase. An increase in the company's income is perceived as a good sign and that gives hope to investors that the price rocketing may continue. Second sign of the asset bubble is when non-professional investors are involved in the market speculations *en masse* (Chirkova 2013).

The third sign of the asset bubble is huge acquisitions of investment assets with only one purpose to sell these assets in a very short time. For the real estate market, high level of investment purchase considered approximately 20%. Fourth sign of the asset bubble is refuse to accept fundamental valuation methods. Fifth sign of the asset bubble is neglect of the bad news in the market, or understanding of this news as good signals and total neglecting of danger signs. On the contrary. During the trough of the business cycle good signals are neglected (Chirkova 2013).

Sixth sign of the asset bubble is overflowing with resources from real sectors of the economy to the financial sector, because it is more profitable to speculate than produce something. Seventh sign of the bubble is the vast expansion of the numerous investment funds and companies. Eight sign of the bubble is a sharp increase in the number of IPO's and worse quality of the newly listed securities. Oversubscription to IPO is also a sign of the asset bubble. Ninth sign of the bubble is a market growth on its separate segment. At the speculative phase of the market, there are only few market leaders. The biggest part of the securities in the stock market does not have any growth, and only few stocks increase. Tenth sign of bubble is widespread financial frauds. As a rule, frauds are discovered when the bubble bursts (Chirkova 2013).

### **3.4. Real estate cycles**

Every phenomenon in social affairs, political life, business activity and real estate consists of the cycles. Unfortunately, many market participants prefer to perceive these phenomena as trends, but not cycles. It is completely wrong vision in its nature, because investors following these trends naïvely believe that these trends continue forever. As a result, market participants make completely wrong decisions and follow herding patterns, blindly see only one phase of the cycle (Pyhrr et al. 1999).

According to Witten (1987) there are four different cycles in the real estate markets: development, overbuilding, adjustment and acquisition. Witten (1987) suggests that there is its own cycle in every city. Every cycle is unique and varies greatly in comparison with the cycles in the other different cities. It could happen that in a given city trends of a cycle even do not follow the national patterns and even patterns of that area. On the base of that, it is possible to conclude that indicators for the future movements in a given market are internal dynamics of demand and supply. Additionally, Witten (1987) mentions that even cycles of one given neighbourhood in the city may contrast strongly from the city's cycles.

According to Wheaton (1987) vacancy rate is a very important factor to determine cyclic behaviour. Vacancy rate serves as an indicator to supply and demand of real property. Vacancy rate is also implemented for the modifications of the rent and price in the real property markets. Wheaton (1987) points out that there is a connection between real property and business cycles.

Fanning (2005) states, that real estate cycle is divided into the following phases: recovery, expansion, oversupply and recession. They are illustrated in the figure 5.

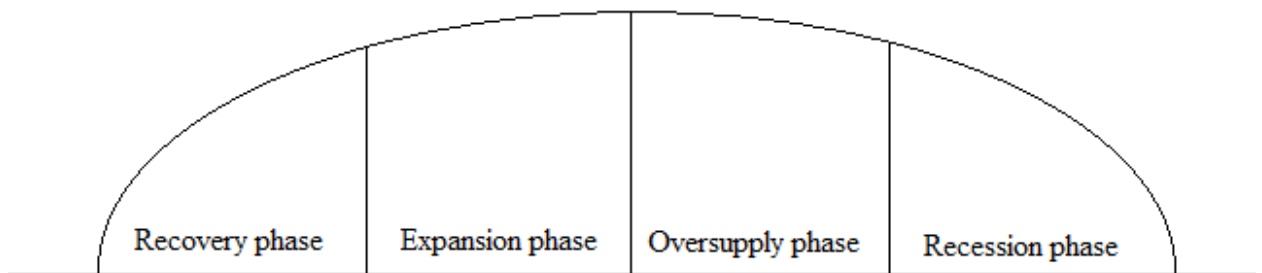


Figure 5. The main phases of the real estate cycle. Based on Fanning (2005)

The first phase is the recovery phase. During recovery period, real property market is characterised by low vacancy rates, low growth of rents and lower absorption rate if to compare with the period of expansion. Usually real estate construction and development are at the trough during this phase, but absorption rate settles down and occupancy rates start to increase again (Fanning 2005).

The second phase is expansion. In the time of expansion, occupancy and absorption rates achieve its maximum. At this phase, there is very high probability of bubble creation. Expansion phase is characterised by the high rates of employment, optimal occupancy rates and raising demand for the real property (Fanning 2005).

Third is the oversupply period. During this phase, real property prices achieve its possible maximum. This is the period of the boom. However, people spend less of their funds on the real estate, as soon as the unemployment start to increase (Fanning 2005).

Fourth phase is the recession. During the time of recession real estate prices fall sharply, absorption rates and occupancy rates decrease. Prices plunge sharply. This process is possible to compare with the burst of the bubble. During the period of crisis or recession employment rates are low and demand for real property is weak, as soon as real property construction and development are on the bottom (Fanning 2005).

Pyhrr et al. (1999) notice that in emerging economy, phases of peak and rise dominate in comparison with the bottom phases of the cycle. Years with economy growth prevail over the years with the economy decline.

At the peak of each renewed cycle (point B at the Figure 6), additional grow to supply and demand reaches new maximums in comparison with previous phase of the economy. In the dropping economy, we come across with the reverse condition. Fluctuations in supply are more unstable than fluctuations in demand. As soon as the lenders' enthusiasm is relatively high, there is a prevalence of the supply above the demand during the period of the peak. On the contrary, lenders' suspiciousness makes the supply to fall below the demand during the period of the trough. The demand cycle dominates over the supply cycle by one period. In these circumstances, it is relatively difficult for the real estate developers to make the right decision when to begin, because market gives signals of need. Additionally, it is relatively difficult to make the correct decision when to leave the market as soon as the decline of the demand begins very rapidly. The best

determining factor of the next phase is the occupancy rate. At the phase of the trough, occupancy rates are at the point A (Figure 6). They normally start to incline in the rising period and reach their maximum at the point B (Figure 6). As soon as the maximum was achieved, they continuously drop during the decline phase (Pyhrr et al. 1999).

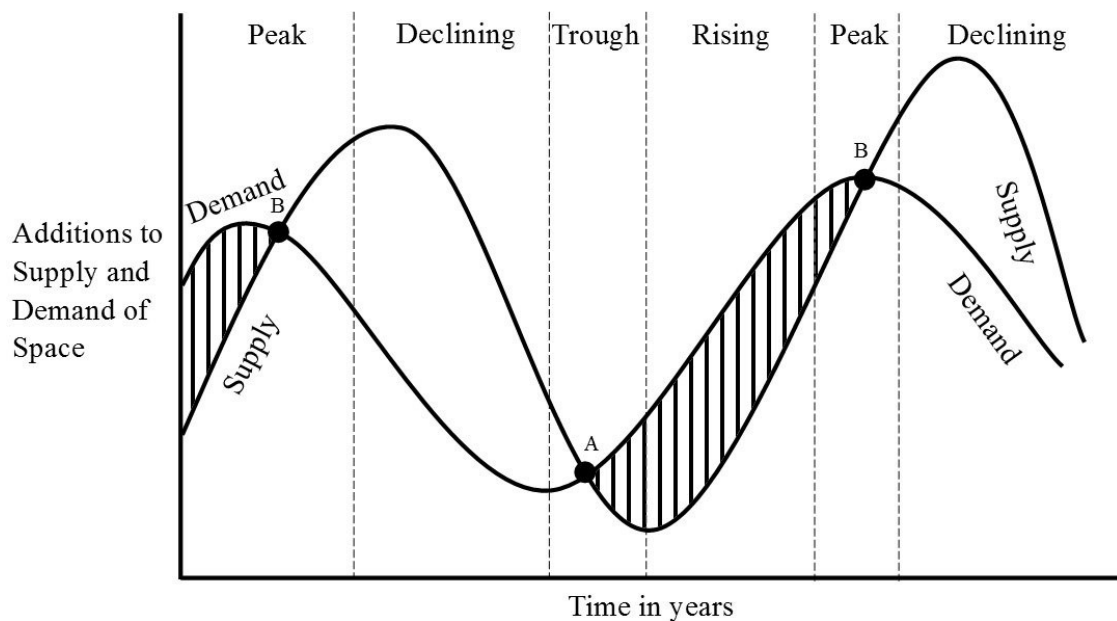


Figure 6. Economic characteristics of real property cycles (Pyhrr et al. 1999)

### 3.5. The myth of real estate investment

According to Genesove & Mayer (2001) real property markets are not perfect assets markets. In the real property markets, all transactions and their prices are defined by the selling part. Genesove & Mayer (2001) recognize sell volumes decline sharply when the prices go down.

It is not possible to give the explanation of this paradox clearly by the models of perfect assets. Genesove & Mayer (2001) observe that loss aversion and equity constraints are present at the real property markets. They also suspect that the selling reacts to the market changes with a relative lag and that lag is another and additional factor, which affects the market.

Genesove & Mayer (2001) notice that buyers' valuation of the property are rather impulsive in comparison with the prices of transactions. Thus, at the trough of the cycle sellers tend to put rather inflated prices. Genesove & Mayer (2001) mention that writing down debt levels is not sufficient factor to achieve the full recovery of the real property market.

Case & Shiller (1988) notice there is excess supply and downward rigidity in asking prices in the post boom markets. Most of these markets end in collapse. Housing markets are very dissimilar from the stock markets. In the housing markets, exist tremendous time risks. It is not possible to exit quickly out of equity position in the housing market. Additionally, there are huge transaction costs in the real property markets: it is required to pay brokerage fees and tolerate yourself with the aggravation of move. Another aspect, there exists huge psychological pressure upon the investor. Investors tend to sell their winning investment in order to enjoy getting their money (Case & Shiller 1988).



Case & Shiller (1988) conclude that suddenness of booms has to be understood in sense of investors' reactions to one another rather than to economic fundamentals. Case & Shiller (1988) note that quite often market participants have a lax conception of fundamentals and interpret events in the markets on the base of common sense.

During the booms, it is hard to anticipate that prices will be formed on the principles of rationality. These expectations heavily influence the prices, which market participants are willing to pay in the market. According to the study of Case & Shiller (1988) investors were not aware that psychological factors could be triggering factors of the boom. Thus, selling price, overrides asking price is a lucid evidence of panic.

There is popular belief that there are low risks in the housing market and one hardly can lose there, and on the base of this belief, people tend to keep prices high, overestimate the investment and put prices above the asking price. It is also relatively difficult to cut the prices, and that is called downward rigidity, as soon as it is very hard to be the first to cut the prices (Case & Shiller 1988).

Case & Shiller (1988) conclude that real estate market is far from being rational, in the rational markets prices are driven by fundamentals like income or demographics. Moreover, there is a lot of information in fundamentals' changes in rational markets. Case & Shiller (1988) see that real property market is largely driven by public anticipations and expectations. These expectations are formed largely in the past movements cause distributional difficulties in the boom cities and let the property owners to gain at the cost of non-owners broadly at all levels.

#### **4. Conclusion on Literature review**

Nowadays crises are becoming widespread and it is necessary to understand, which factors trigger the worsening of the financial situation in the world or any particular country, and how this knowledge may be used to avoid negative circumstances in the future and to make the recovery process more stable.

In the chapter "Financial crisis and its definitions" were overviewed the most important aspects and signs of financial crises. From the start until the apogee of every crisis. For instance, Eichengreen & Portes (1987) define crisis as a disorder in the financial markets, which causes huge troubles.

When there is a disorder, everyone has difficulties as soon as financial system and financial institutions in this system are interconnected with each other as it was correctly noted by Matthews & Tlemsani (2010).

Crises are dangerous because they force investors to lose optimism; they have negative impact on the construction industry, real estate industry and banking industry. These segments of the economy are hit first, because real property is always a long investment and most development projects are financed with the mortgage or any other loan possibilities. It is inefficient for investors to finance the whole project with their own funds, because they need to free up partial funds for the other projects and to avoid unnecessary risks.

For example, Mishkin (1992) suggests to define crises by the five following factors: sharp increase of interest rates, decrease of the prices in the stock markets, high levels of uncertainty, bank panics and unpredicted declines of the assets' prices.

Without any doubt, these factors illustrate typical crisis and its consequences. As usual, during the boom time we can see careless and overoptimistic investors, who blindly buy numerous assets, and quite usual real estate, as the simplest and easily understandable investment, hoping to sell it to another more naïve investor. These overoptimistic investors do not see the creation of the bubble in the market. They are passionate in their euphoria and do not understand that they acquired these assets only for resale purposes, but not as the proper investments.

Yet, we can see the bust of the economy where all investors have lost their optimism; many of them were collapsed as soon as they were not able to cover their debts. As soon as there is a significant level of interconnectedness in the financial system, we can see collapsed banks and financial institutions, who suggested to another investors or another banks new vehicles or financial instruments with the purpose to securitize mortgages and debt obligations and earn additional commissions for the creation of new deals and new investment vehicles.

All above mentioned clearly demonstrates how economy losing its balanced condition. Minsky (1992) described that when economy is losing its balance Ponzi units start to prevail in the economy. If hedge financial units or speculative financial units are able at least partly or with prolongation to compensate their obligations. Ponzi financial units are never able to do so. Moreover, it is possible that hedge units can turn into speculative units, when the economy is in the unbalanced state as Minsky (1992) described.

After that, it is becoming rather hard to disagree with Matthews & Tlemsani (2010) who insist that financial sector cannot generate wealth. All the financial sector does – is the wealth redistribution. Without any doubt, it is possible to come to conclusion that it is what Ponzi financial units usually do.

As Minsky (1992) noted banks are merchants of debts. Every merchant is interested to maximize his profits as much as at it possible, sometimes even ignoring reasonable risks. That is why we witnessed so many banking collapses during the past crises. As Calomiris (2007) correctly noted every banking collapse is result of increasing levels of unskilled management, lack of discipline and increasing levels risky behaviour.

Thus, we can see running depositors from the banks, who withdraw their deposits even from the internally healthy financial institutions, because panic forces them to do so.

Again, as soon as financial world is much interconnected, insolvent banks cause difficulties to the healthy banks. Thus, banks wait for the government's help. Hoping that they will be saved in any case in order to continue their imitation of market efficiency as Matthews & Tlemsani (2010) noticed.

In this case, it is only possible to agree with Calomiris (2007) and conclude that banking protection should be avoided as it corrupts the market discipline.

For that reason, banks are having problems, when nobody is able to take correct decision and the crisis deepens harshly.

Herring & Wachter (2003) correctly noticed that governments and supervisory authorities, which represent governments, often undervalue the magnitude of the crisis. As the result, they do not take any measures if there is no evidence of bank run. Supervisory authorities wait and speculate, but their unwillingness creates herding. So what is herding? Herding is dangerous phenomenon

for the market. Because of herding investors may ignore their own decisions and “hide in the herd” as Devenow & Welch (1996) describe.

For these investors and managers it is better to make collective mistake rather than to make individual right decision. They are scared that their individual decision may be wrong and they may stay alone in the market at the same time when it happens so that their decision is correct it is extremely hard to play against trend, because the crowd does not like individual winners.

It was mentioned by Szyszka (2010) that upward trend attracts a huge amount of the new investors and prices hit the new levels. Therefore, in other words, herding is a force that helps to create the bubble.

In the chapter “Real property bubbles” were described phases of bubbles during crises, types of bubbles and numerous points of view on the signs of bubble.

Brunnermeier & Oehmke (2013) divide every crisis into two phases: 1) when the bubble forms and 2) when the bubble bursts.

As soon as, bubble forms unexpectedly it is extremely important to understand at least most simple and obvious signs of the bubble. Correspondingly, Okina et al. (2001) select the following signs of bubble economy as: rapid rise of asset prices, overheating of the economy and increasing amount of loans.

Without any doubt, increasing amount of loans is a very warning factor that leads to bubble formation in any financial market and especially in the real estate markets. Increasing amount of loans signalises that market is booming or overheated and very soon, investors become over-indebted.

As Brunnermeier & Oehmke (2013) note real estate bubbles lead to the inefficient construction of new housing and their bursting significant slows down economic activity.

Types of bubbles are also important, as soon as for every particular market there are different factors that form the bubble. However, these factors have many similarities.

Some authors like O’Hara (2008) differentiate bubbles by rationality of markets and market participants, but the other authors like Lind (2009) differentiate bubbles by their internal or external structure.

Real estate prices are in connection with the real estate cycles, that is why it is important to understand real estate cycles in order to correctly understand the pricing of assets and whether these assets are overvalued or not. Most typical phases: are recovery, expansion, oversupply and recession as it was suggested by Fanning (2005). Every phase has its own characteristics like a season of the year, but it is necessary to have the ability to determine these characteristics. Most obvious characteristics are occupancy rates, absorption rates and vacancy rates.

Thus, during the expansion phase occupancy rates and absorption rates are at their peak. However, recession phase could be compared with the burst of the bubble, when real estate prices plunge sharply.

Oversupply phase is characterised by decreasing levels of real estate acquisitions, as soon as many people have lost their jobs during that time. At the same time, during the recovery phase vacancy rates are quite low.

Fundamental factors: such as income and demographics usually are the best determinants of prices, the careless investors quite often ignored these factors. Not only did investors ignore these factors by also the presence of real estate cycles. Only for one reason, because it was relatively difficult to determine the current phase of the real estate cycle.

Overall, blind belief in the perpetual money making machine is always wrong. It is necessary to bear in mind that real estate markets are far from being rational as Case & Shiller (1988) conclude. It is necessary to understand that tremendous time risk exist in the real estate markets and it is difficult to exit position quickly in this market.

That is why it is so important to take into account all fundamental factors, so that not to fall a victim of the forming real property bubble and not to become that fool who is trying to sell his assets to another greater fool in the market.

## **Part III – Empirical study**

### **5. The crises of the 1990s in Scandinavia: cases from the Nordic Countries**

According to Reinhart & Rogoff (2008) the eighteen crises that occurred before the sub-prime mortgage crisis in the United States are divided into "Big Five" and other small-scale crises. In the number of the Big Five crises are crises that occurred in Scandinavia in the beginning of the 1990s.

All main banks in Scandinavia were in the hard situation during that time and had lost large amount of funds. All of the Nordic countries were in need to supply support to their banking systems. In comparison with the other Nordic countries, Denmark provided smaller support. On the contrary, public support to the banking systems in Finland, Sweden and Norway was considerable. As a result, crises of Finland, Sweden and Norway were systemic. However, Denmark was able to escape a systemic crisis (Honkapohja 2009).

#### **5.1. Finland**

Economy in Finland was doing well in the beginning of the 1980s. Disregarding the slow disinflation, the Finnish inflation rate was higher in comparison with that of the other countries. As a result, Finnish international competitiveness started to decline. The situation started to worsen in 1986-1987. Economy got on the time of overheating. Economic growth was intensified. Financial markets were deregulated in that time and credit of national banks started to grow. Banks were forced to synchronize a new program of price-competition, as a substitute of the service provision during the time of regulations. As a result, the competition between banks started to grow and there was felt the maximised risky behaviour in the banking area. Capital inflows, denominated in foreign currencies, started to increase. Restrictive monetary policy brought out the capital inflows, because there were a difference between national and foreign interest rates and investors did not believe in loss from exchange rate movements (Honkapohja 2009).

Another reason why economy was overheated were declining energy prices and an increase in world prices of forest products. Because of the economy overheating, inflation rate rocketed from about 2-3% in 1986 to about 7% in 1989-1990. Unemployment rate turned from the nearly 4% in the beginning of 1980s to 2.5-3% at the end of the decade. Serious account problems in Finland started to emerge and country's foreign balance suffered considerably. Finnish boom ended in 1990. The growth rate of real GDP plunged quickly from positive growth of 5.4% to negative growth of -6.5% in 1991. Private consumption and domestic private investment rates declined swiftly. The decline continued until 1993, nevertheless at a slower pace in 1992 and 1993 (Honkapohja 2009).

Situation changed in the autumn of 1993. Inflation started to slow down and nearly disappeared. Devaluation of FIM happened in November 1991. That have helped to change current account deficit into surplus (Honkapohja 2009).

Finnish crisis was the reason of both national and global factors. Finnish industry became less competitive and exports to markets economies decreased. Soviet Union dissolute and Finnish export and import to Russia plunged rapidly by 70% in March 1991. Monetary policy became very restrictive and interest rates inclined (Honkapohja 2009).

Policy measures to overcome the banking started in September 1991. Bank of Finland have taken control of Skopbank, as soon as other banks were reluctant in accepting certificates by Skopbank. That was an essential step, because there was no other institutional measure to rescue the troubled bank (Honkapohja 2009).

Slow improvement in the banking sector happened in 1993. However, loss making by banks ended only in 1996, and only in 1997 profit trend became positive for the banks. After that most of the attention was turned to the savings banks and their support (Honkapohja 2009).

## **5.2. Sweden**

Swedish economy had many similarities to the Finnish and development trends in both countries were quite similar during the last decades of the 20th century. That is why both countries usually were named economic twins (Jonung et al. 2008).

However, one significant distinction in comparison with Finland existed. Sweden had little trade with the Soviet Union; as a result, dissolution of Soviet Union had no economic influence on Sweden (Honkapohja 2009).

Before 1985, strong regulation of the credit market defined the levels of interest rates and determined supply of credit in Sweden. Since 1970, high inflation was a common trend. Furthermore, the tax system gave advantages to borrowers. However, during the time of the boom companies were seriously limited in their selection of loans. In 1985, the national credit market was deregulated in Sweden. The same thing was possible to say concerning Finland. After the financial deregulation followed no fiscal policy measure were taken. Fiscal policy remained quite expansionary. As a result, that caused fast increase in lending from banks in national and foreign currencies. Inflation rate and inflation expectation started to grow. Debt as a percentage of GDP increased significantly. Prices on property, commercial property and shares rose more quickly than consumer prices. At that time, financial system experienced a period of huge expansion (Jonung et al. 2005).

Swedish and Finnish economies were overheated. Economies experienced a strong boom in 1988-1989, which was characterized with high rates of employment, increasing consumption levels, and declining savings ratios. Residential construction industry was booming. Swedish and Finnish currencies were overvalued. Public consumption and public expenditures were increasing in excessive manner (Jonung et al. 2005).

In the beginning of 1990s, the boom in the real economy stopped and turned into bust. Bust was characterized by the increase of real interest rates, termination of capital controls and decreasing domestic demand. After the reunion of Germany real interest rates started to grow and that resulted on higher pressure on Finnish and Swedish rates. After the tax-reform in 1990-1991, in Sweden borrowing became less attractive and caused increase in private savings (Jonung et al. 2005).

In 1991, Swedish and Finnish currencies' courses were fixed to the European Currency Unit (ECU). Previously both currencies were linked to a basket of currencies. After the endeavors to protect fixed exchange rate against the attacks of the speculators, interest rates increased in Sweden. Started problems with the export sector as soon as currencies of Finland and Sweden became overvalued. The value of real assets was reduced by increasing rapidly real interest rates. As a result, amount of bankruptcies was increasing and sell-out of property triggered new sales. After the increase of real rates of interest rates, capital stocks were excessive. Consumption levels

declined and negative wealth effect have taken its effect. Investment in construction industry declined rapidly and unemployment increased. The government budget deficit raised significantly (Jonung et al. 2005).

In November 1992, Sweden introduced floating exchange rate for SEK. Economy's upturn started in the next year and lasted for several years. However, unemployment rates were still high. As a result, wages and prices were kept stabilized. Export shares started to increase and inflation targets were introduced. Inflation rate was kept at a low level throughout period of 1995-2000. Recovery was lengthy and lasted until 2001 (Jonung et al. 2005).

### **5.3. Norway**

Banking crisis in Norway in 1991-1992 was a vivid demonstration that there were several wrong decisions concerning financial deregulation that happened in the middle of 1980s. Although, Norwegian situation was similar to that in Finland and Sweden, there were fundamental distinctions (Steigum 2009).

Financial crisis in Norway did not have that sinister impact in comparison with Finland and Sweden. Crisis in Norway had a systemic character. As the business cycle in Norway achieved its top point, it has taken more time for the crisis to exhibit itself. Norwegian government was also able to get additional profit by using taxation in order to relieve the banking sector (Steigum 2009).

The time from 1984-94 was an awful situation for Norwegian politicians. The process of financial deregulation received acceleration; as a result, all quantitative control of loaning was removed. Last factor was the reason of the lending boom start. Private consumption and asset prices also grew in a very impressive manner (Steigum 2009).

In the 1985, the government's majority in the parliament was lost after the oil prices plunged in 1986, and happened significant increase of private consumption and asset prices. During the period of 1983-1986, there was a significant increase in the number of branches of commercial banks in Norway by 15%. Number of the savings banks increased by 5.5%. During the period of 1983-1987, there was a gradual raise in the number of employees in the savings banks by 19% and by 28% in the commercial banks. The overheating of the banking sphere in Norway became noticeable after the business cycle started to decline. After that, in 1987, the amount of workers in the private banking sphere started to drop-off (Steigum 2009).

The rate of unemployed in Norway in 1986 was 1.8% and it was decreasing. In the autumn of 1985 started strong speculation against the NOK. In order to prevent that Norges Bank started to provide short-term loans in large amounts. In May 1986 new government came to power and Norwegian krone was devaluated by 9%, after that followed an increase in the interest rate and was introduced a program of the fiscal control. The wages were raised soon after the impressive oil price decline, which decreased Norway's terms of trade by 25% (Steigum 2009).

Consumption of the households was decreasing for three years and declined by 11% from 1986 to 1989. Only in 1990 a modest recovery of the consumption was noticed, and in 1992 rate of household savings recovered to 5.9%. As the fiscal policy became more expanding in 1990s that have strengthen household disposable income (Steigum 2009).

In 1986, non-residential real property in Oslo have increased in price drastically in the time of the lending boom, and then plunged to the level of 1982 in 1992. Non-residential real property price

bubble was triggered by the credit supply shock. On the contrary, housing prices behaved in the other way. Initially, it was increasing as an effect of the housing market's deregulations. Then, during the lending boom rose continued, but in lesser extent than the relative price of non-residential real property. In the 1987 decline had an enormous effect, which is not possible to compare with what happened in the time of the boom. During the next boom in the 1990s, housing price jumped to a much higher level in comparison with the 1987 (Steigum 2009).

The business cycle achieved its top point in the third quarter of 1986. In 1987, unemployment rate was 1.5% and the inflation rate was 8.7%. Government have taken decision to decline inflation in a gradual manner, as soon as it was not possible anymore to devalue NOK. In December 1986, Norges Bank set its interest rates in this way to protect fixed exchange rate, defined in terms of a currency basket. In 1988 and 1989, wage regulation legislation started to work and that accelerated disinflation process. In 1988 unemployment started to grow and recession begun (Steigum 2009).

The troubles in the banking sphere started in 1987 and were rising through 1988-1989. At the beginning, it was believed that these troubles could be handled by mergers and support from the own deposit insurance funds of the banking industry. In 1991, a systemic banking crisis broke out, which involved all large commercial banks. In December 1992, the Norwegian currency was attacked, after the past attacks of Swedish and Finnish currencies. As result, Norges Bank let the currency float. Economic recovery in Norway started in 1993. Economy of Norway was not hit so severely as those of Sweden and Finland. It suffered from a cyclical downturn in 1988-1989, but the decline in real property prices and recession did not activate the banking crisis at once. It is necessary to mention that for a few years after the initial downturn, real after-tax interest rates increased, decrease of asset prices continued, unemployment raised, however signs of recovery were unnoticeable (Steigum 2009).

## **5.4. Denmark**

The situation in Denmark were not comparable to the other Nordic countries. There were no that heavy financial crisis, but only a number of problems with the banking sector. Macroeconomic situation in Denmark in the beginning of 1980s was not stable. Unemployment and inflation were rather high. Expansionary fiscal policy was used to increase employment and reduce deficits on the current account (Vastrap 2009).

From 1986, macroeconomic policy started to improve the situation. Exchange rate became stable and that increased the stability in the economy. Fiscal policy was rather strict and economy growth was not very high. In 1990, both factors turned the deficit on the current account into a surplus. In 1993-1994, the current account was in a surplus. That allowed Denmark to boost domestic demand and increase employment rate without entering into deficit on the current account. In 1990s, this expansion was a benchmark of the end of the period of high losses and loss provisions of the financial sector (Vastrap 2009).

In fact, time from 1987 to 1993 was characterized by very low, but lasting economic growth and slowly decreasing real estate prices. Banking problems in the beginning of the 1990s were economic shocks, which were caused by the increase of oil prices in the world and inaccurate economic policies in 1970-1980s. Although a policy of a fixed exchange rate was reintroduced in 1982-1983, it would not have been successful without the proper fiscal policy. Denmark was able to avoid banking crisis, because of the change to a proper fiscal policy, and the stabilization of the current account and the foreign debt (Vastrap 2009).



## **6. Financial crisis 2007-2008: cases from the Baltic Countries and Iceland**

Baltic countries in the years 2000-2007 experienced steady economic growth. Domestic demand was growing and caused fast financial development. This period of economic boom caused rather high inflation and increase of the foreign debt. It is evident that these developments were unsustainable and in 2007 followed the decline. In this context, it is necessary to differentiate two different stages. First stage led to a more strict lending standards and the decrease of confidence. Second stage limited the availability of the foreign capital and caused a harsh recession in the Baltic countries. All of the three Baltic countries were forced to diminish wages, cut down social expenditures and pensions. Latvia was hit the most strongly by the financial crisis and needed assistance package from the EU and the IMF (Martin 2010).

Credit Boom in the Baltic countries was also caused by the huge amount of the foreign currency-denominated loans. At the end of the boom, the share of the loans in the private sector for foreign currency was above 80% in Latvia, close to 80% in Estonia, and about 60% in Lithuania. Foreign loans prevailed in the market because of the lower interest rates of the foreign currencies and the extent to which lending is based on the foreign deposits (Martin 2010).

Prices for the houses also rocketed. In that time, it was a question whether real property prices in the Baltic countries were in equilibrium or misleading during the boom. As an example, it is possible to say that top-end real property in Riga in 2006 was already above comparable price levels in Vienna and Berlin, which tend to be rather low by West European standards. On the base of that it is possible to assume that, the real property price levels were misleading during the Baltic boom (Martin 2010).

Inflationary pressures during the boom years increased significantly, as soon as the inflation was coming from external factors such as increases in food, energy, tax adjustments and customs duties. Service prices also rocketed what hardened labour market situation in the Baltic countries. Because of the labour market developments and increasing inflation expectations, the growth rate of nominal compensation per employee increased significantly during the boom years. That have caused significant increases in real unit labour costs. All of the three Baltic countries were hit severely by the global financial crisis. As a result, it became more difficult to obtain funds abroad to service existing debt and to safeguard further credit growth. Foreign demand was weakened and export was reduced, both factors had a negative influence on employment. That created difficulties in the banking sector and increased amount of the insolvent loans. Gross foreign debt (in percentage of GDP) in the Baltic countries reached levels above 120% of GDP in Estonia and Latvia in 2008. This was predominantly a result of very tough credit growth to the private sector, which was mostly funded by Scandinavian banks, prevailing on the Baltic banking sector (Martin 2010).

Short-term external debt relative to GDP showed a clear upward trend in the Baltic countries during the boom years. The ability to roll-over external debt depends critically on the extent to which a country is seen as “risky” by international financial markets. As the global financial crisis spread to the Baltics and other CEE countries and risk of sovereign default became potentially possible rating agencies started to lower Baltic country ratings (Martin 2010).

Iceland was hit harder than other Western countries during the time of global and economic crisis. This crisis was threatening seriously to the financial independence of the country (Forrest & Yip 2011).

Economy growth and country's development could be characterised as stable and reasonable in 1990-2002. Iceland's integrity with the European Economic Area was one of the reasons, which caused economic boom in the country at the end of the 1990s. The first warning signs came from abroad to Iceland when in February 2007, the credit ratings of the state were downgraded and course of the ISK declined to 20% against the euro. However, in 2007 Icelandic krona was able to recover in the middle of 2007 and warning signs started to disappear. On the 15 September 2008, collapse of the American bank Lehman Brothers played its negative role in the financial collapse of Icelandic banking system (Forrest & Yip 2011).

After the start of the economic crisis in Iceland in the autumn of 2008 there was no doubt that homeowners in Iceland would be suffering the most from the effects of recession as soon as housing policy in Iceland has always been focused on homeownership. Renting has always been marginalized in Icelandic society and was considered as a temporary housing solution (Forrest & Yip 2011).

## **6.1. Estonia**

Estonian economy had a rather strong growth in the years 2005-2007 due to cheap and available loans. As a result, the loan burdens of the private persons and businesses started to grow very fast. For the banks, it was a good idea to lend money to Estonia whereas business climate and budgetary policy had solid rate of the safety. High stability on the financial markets prevailed at that time. People wished to enhance their housing conditions and were actively seeking for the cheap loans. Banks understood the moods of the society and actively provided loans as soon as they did not want to lose in market share. All these trends tolerated to the quick development of real estate and construction sectors (Rei 2009).

Excessively growing real estate market required the new labour force. In the first quarter 2005 unemployment rate in Estonia was 9.5%, whereas in a year's time it was already 6.5%. That spontaneous decrease in the unemployment played into the hands of enterprises because that gave additional rise to competition for labour force. Real property market was growing rapidly because of favourable loan opportunities. Construction industry also received additional advantage, because competition decreased in this market due to a huge amount of orders. Prices in the construction industry were rather high. This situation lead to the fall of the unemployment below the natural rates. Emerging labour force pressed on the other economic activities and it was necessary increase wages (Rei 2009).

Signs of the economy overheating were already present in 2006. For instance, median average price per square metre in 2005 in Harjumaa county was 13300 EEK, and in 2007 - 23500 EEK (Rei 2009).

During the time of the economic boom, labour productivity per employed person was growing year after year. Real estate activity was also in a huge upward trend; amount of people involved in the real estate had been growing steadily. On the contrary, labour productivity was declining. It clearly demonstrated that labour costs were rising faster in comparison with the labour productivity. Labour productivity started to fall in 2005 and in 2006 decline in labour productivity

was rather high. Quick decline in the economy happened in the 4th quarter of 2008 and because of that, growth in labour cost had stopped. At the time of the economic boom, labour reduction became rather expensive for enterprises and a significant reduction of labour force was marked. That made positive effect of enterprises at that time futile (Rei 2009).

## **6.2. Latvia**

There was a remarkable growth in Latvia since the mid-1990s. Purchasing power parity increased 16 percentage points compared to EU 15. Latvia was among the fastest growing new member states in the EU. In the mid-2000s, Latvia was captivated by the “EU-phoria”. Economy was rising very rapidly during the three years, starting from 2005. Country was progressed continuously, but in 2005, there were marked first signs of the economy overheating such as growing inflation, increasing wages, and an expanding account deficit. Foreign capital had flowed into the Latvian economy since the mid-1990 and subsidized economic development, but also became one of the reasons of economy overheating. After the country joined EU, unemployed, low-skilled workers and construction workers migrated to EU member countries, mainly the United Kingdom and Ireland (Koyama 2010).

Nordic banks, particularly Swedish, were competing for the market share in Latvia and started to intensify their activity in Latvia. These banks were giving loans to the liberalization of financial services. Banks obtained Euro in exchange for SEK on the international financial markets and provided Latvian customers with loans denominated in Euro. Thus, it was easier for the households and enterprises to get lower interest rates. As a result, credit to private residents increased by approximately 65% in 2005, and the loan to GDP reached 70%. Nearly half of all total loans was related to real estate sector. Latvia also received EU grants amounting to 3-4% of the GDP every year. The inflation rate was constantly increasing and that reflected in the consumption boom and the creation of housing bubble. It was fluctuating between 1.4% and 3.6% until 2003, but then suddenly raised to 7.3% in 2004. In 2005 it was 7% and in 2006 6.8%. The refinancing rate was raised by the central bank by 50 basis points to 5%. It was meaning that the interest rate was practically negative (Koyama 2010).

The government was still optimistic at that time, but foreign analysts were very much worried with the state of the Latvian economy. In February 2007, the grading company S&P downgraded Latvian rating from stable to negative. In the early March 2007, Latvian currency was under pressure and central bank was forced to intervene in the first time in several years. Finally, Latvian government started to initiate a package of measures to achieve a reduction in inflation. Refinancing rate was raised from 5% to 5.5%. However, the measures introduced by the government started to work only in the autumn of 2007 (Koyama 2010).

By October of 2007, the real property prices were 12% lower than at the beginning of the year. As a result, number of housing sales in the secondary market plunged and added the negative wealth effect. Parent banks started to withdrew funds from their subsidiaries and consumers had become more cautious, as soon as uncertainty about the outlook for jobs and income increased. In April 2008, inflation rate was 17.5 % and that severely damaged household purchasing power (Koyama 2010).

The construction industry started to decelerate and economic growth slowed down rapidly from 12.2% in 2006 to 10.3% in 2007 and -1.9% in the second quarter of 2008. Inflation rate in 2008 increase to 15.5% and it was the stagflation. Depression in the Latvian economy begun in

December 2007. It was worsened by the two factors: a global one - Lehman Brothers' crash; and a local one - a sudden outflow of non-resident deposits from Parex Bank. Parex Bank was a domestic bank with an extensive growth. Bank collected deposits from non-residents and had no parent bank behind it. Thus, it was quite troublesome to find the way out of the financial crisis for Parex Bank. In November 2008, this bank was nationalized in order to prevent bank's bankruptcy. Bank's nationalization also had made a negative effect on the Latvian economy (Koyama 2010).

Luckily, Latvian financial market was able to hold on due to the external help, but the country was considered as a highly risky and had complications in getting loans from the international credit market (Koyama 2010).

### **6.3. Lithuania**

The most significant reasons of the economic crisis in Lithuania were the negative trends of the real property market, lack of adequate economic policy and indeterminate policy in the international markets. Economy of Lithuania was growing rapidly in line with the other Baltic economies during the years 2004-2007. During these years unemployment was constantly decreasing, incomes of the population were increasing and country received financial support from the European Union. Population and business cherished hopes that country's successful development might continue. Following these hopes, businesses and households began actively taking loans and banks subsidized this activity (Davulis 2012).

The largest share of loans was belonging to the real property market. Government stimulated these processes by giving taxation privileges. These tendencies stimulated the creation of the real property bubble. The volumes of loans have grown more than ten times during the years 2004-2007 from 50 million LTL up to 720 million. These tendencies have always been the inevitable reasons of the real estate bubble forming. After the burst of this bubble, interest rates have grown as well. That affected Lithuania economy in the negative way. As an effect, economic growth and consumption decreased. As soon as the crisis was global, consumption in the other countries decreased as well and that had made the negative effect on the Lithuanian export and caused economic depression in the country. Lithuania was incapable to compensate the decrease of the export because of the too small size of the domestic market (Davulis 2012).

### **6.4. Iceland**

One of the worst financial crises in history of Western Europe occurred in Iceland in 2008. Financial system of Iceland mostly consisted of three largest banks: Kaupthing, Landsbanki, and Glitnir. They had grown from small commercial banks into international investment banks. In 1993, Iceland became one of the founding members of the EEA. Icelandic banks were able since that time to operate within the border of the European Union (Sigurjonsson & Mixa 2011).

Financial sphere of Iceland had experienced rough period of deregulation before the privatization of banks. A period of privatization was characterised with a high level of optimism and increasing risk allowance (Sigurjonsson & Mixa 2011).

During the boom period in Iceland internal credits to the non-financial private sector was rocketing. High rates of internal credit were pressing strongly on national equity prices. Icelandic stock market peaked in the middle of 2007; during the four years, it was able to achieve the growth

of 390%. High level of stock-market capitalization to GDP was a signal that a stock-market bubble formed (Carey 2009).

Prices of housing started to increase steadily from 1998. In 2000, prices had risen by 31% in comparison with 1997. In Reykjavik area, prices of housing property achieved its peak in 2007. In 2007, housing prices were 127% in comparison with the year 1996 (Forrest & Yip 2011).

One of the reason why prices for housing property rocketed so rapidly was the entry of the newly privatized banks on the housing mortgage market and expanding of their share of mortgage lending (Carey 2009; Forrest & Yip 2011).

Construction activity was also increasing steadily from 2000 it had an increase of 150% in the period of 1999-2007. In the year 2008, construction activity remained high. Nevertheless, in the year 2009 amount of completed housing declined by 70% and building project by 94%. It was meaning that housing building industry collapsed in Iceland. There were a significant fall of housing construction in Iceland. In 2009, the only functioning housing financial institution that was left after the collapse was Housing Financing Fund (Forrest & Yip 2011).

Icelandic property boom continued until the banking collapse in 2008. In autumn 2008 housing prices declined by 15.8% in real terms. After that, prices continued to decline and by December 2009, they had plunged in real terms by 34.3% since October 2007 (Forrest & Yip 2011).

Credit offers were sufficient in the time of the boom and loan taking was increasing steadily. Asset prices were rocketing due to easy admission to cheap capital. The assets of the Icelandic banks became extremely undefended and banks started to lose their credibility. Although the Lehman Brothers' collapse did not have a great effect on the Iceland banks, it also played its negative part. After Lehman Brothers' collapse, it became clear that large financial institutions could go bankrupt without the state rescuing it (Sigurjonsson & Mixa 2011).

Activity on the international and interbank markets declined significantly, liquid resources started to vanish and assets became untradeable. That moment became a turn point for the Icelandic banks. The whole financial system of Iceland was involved in the crisis (Sigurjonsson & Mixa 2011).

After the short-run funding fade away, margin calls started to come from the European Central Bank. Glitnir Bank was seeking for help, but Central Bank of Iceland was reluctant to help to the troubled bank. As a result, Glitnir bank was taken over by the government. Landsbanki was not able to meet its obligations and went into bankruptcy. Kaupthing was still viable and government provided it with 80 billion of ISK as a loan (Sigurjonsson & Mixa 2011).

Landsbanki had a branch in the United Kingdom and was able to collect 1200 billion ISK through Icesave deposit accounts. This bank was operating a branch instead of the subsidiary and that resulted in the transfer of all its liabilities to the Icelandic state. Central Bank of Iceland stated that it could not fulfil these obligations. United Kingdom authorities reacted immediately to this statement and seized the UK assets of the Icelandic banks applying antiterrorist laws to their decision. Kaupthing's operations were ruined and on the 9th of October 2008, it was placed into technical default (Sigurjonsson & Mixa 2011).

After the failure of the banks, domestic demand started to decline in the excessive manner. Residential investment plunged and companies started to eliminate general investment expenditures. Imports declined sharply and trade balance plunged close to zero. Income deficit

was 32% of GDP in Iceland. Unemployment rocketed to 7.1% in the first quarter of 2009. Housing prices plummeted and wages quickly decreased by 6.75% in May 2009 (Carey 2009).

## **7. Cross-case analysis of the crises**

In order to get any lessons from the crises it is necessary to analyse the fundamental factors, which influence on the real estate prices (or on the real estate index) and affect the economic growth. This chapter demonstrates the effect of the fundamental factors and the effect of these factors to the level of the real estate prices. In this chapter are touched the research questions of the given Master's thesis and are given answers to these questions. On the base of the two previous chapters, which describe the situation in Finland, Sweden, Norway and Denmark in the time of the Scandinavian crisis of the 1990s and the economic situation in the Baltic countries and Iceland in the time of the global financial crisis 2007-2008 it was decided that such factors are the most suitable to demonstrate the formation of the real property bubble as the real estate index, change of the GDP, change of inflation rates and the change of the unemployment rates.

### **7.1. The crises of the 1990s in Scandinavia**

The analysis of the crises in Scandinavian countries is represented by the four figures, which describe the change of real estate index, GDP, inflation rates and unemployment rates in the period of 1980-2000.

That period were chosen to demonstrate the pre-crisis changes of the above-mentioned factors and to describe the recovery period after the burst of the bubbles in selected countries.

#### **7.1.1. Nominal real estate index**

In the figure 7 it is clearly seen the creation of the real estate bubble in the Finnish real estate market. Prices achieved their peak in 1989 and then started to decline rapidly. In the 1993, level of residential property prices achieved its bottom. Residential property prices in Finland were continuously growing from the beginning of 1980s. Market was overheated and that created a bubble in the Finnish real estate market. It is also necessary to note that this change in Finland was more significant in comparison with the other Nordic countries. Probably that is why the Scandinavian crisis in 1990s affected Finland more heavily than the other countries. Situation started to improve from the end of 1994 and residential property market started to improve from the 1995.

In Sweden, as it is seen from the figure 7, the creation of the real property bubble is relatively remarkable. Sweden also suffered severely from this crisis, but reacted more rapidly to negative consequences and was able to avoid most of them.

Swedish bubble of the residential property is not as huge as a Finnish bubble in the residential property market. Authors like Honkapohja (2009) notice that Finland had important relationship with the Soviet Union and after its dissolution have a lost a significant part of its import and export. Probably that is why Swedish bubble in the residential property market was not that huge as a Finnish one.

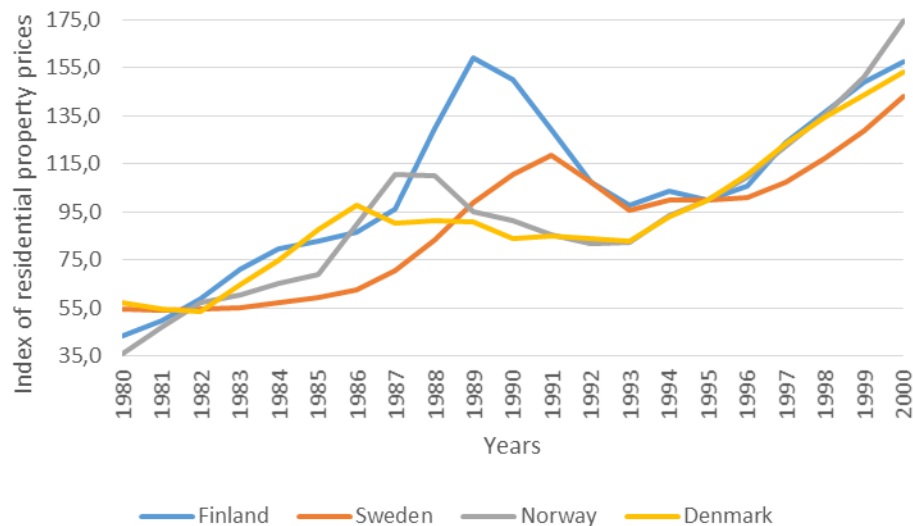


Figure 7. Nominal residential property index in the Nordic countries 1980-2000, base year = 1995. Based on (Bis.org 2016)

However, Finland and Sweden were described by Jonung, Kiander, et al. (2005) as twin economies. From the figure 7, it is clearly seen that the optimism in the Finnish residential property market was lost earlier in comparison with Sweden and the burst of the Finnish bubble started earlier than in Sweden.

Evidence of the real estate bubble is also present at the Norwegian residential property market. It is worth of saying that the Norwegian real estate bubble was smaller than Finnish and Swedish bubble. It is clearly seen that the decrease of the prices was not that strong as we can see in the case of Finland and Sweden. Nevertheless, it had some impact during the crisis in the 1990s, and negatively affected economic development of Norway. The high levels of optimism among investors and wide availability of loans mainly caused creation of the bubble in Norway during the boom years. Later, as it is seen, prices evened out with the level of prices in the other Scandinavian countries, which was the evidence of the recovery phase.

Denmark was the only Nordic country that avoided the crisis in the 1990s. There were several problems in the economy. However, growth continued during the whole period of the crisis years 1987-1993 as it was noticed by Vastrup (2009).

In the figure 7, it is seen, that the prices were growing during the boom period. However, the bubble was not formed, but the level of prices in the residential property market achieved its top point and started to even out with level of prices in the other Nordic countries.

### 7.1.2. Change of GDP

Gross domestic product is a very important component, which describes economic situations in the each country. When the growth of GDP slows down it is possible to say that the country development stopped and it is the beginning of the recession.

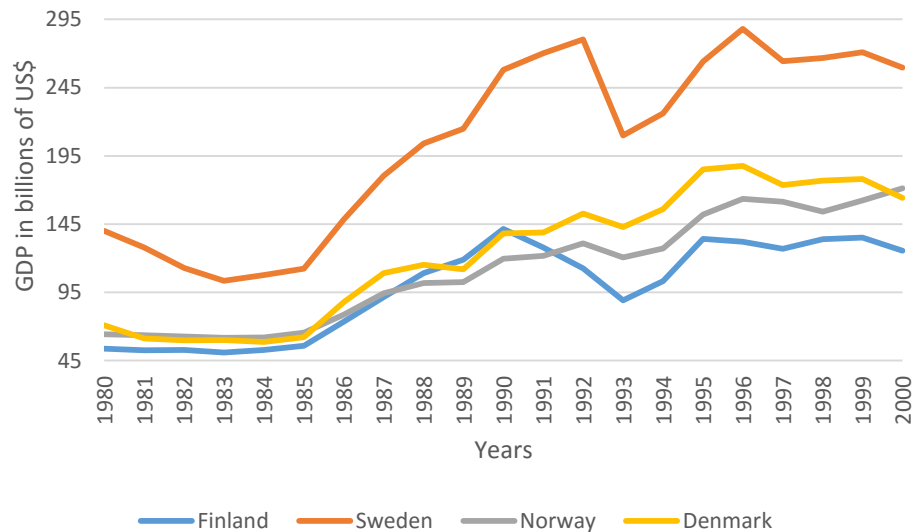


Figure 8. GDP at market prices in billions of current USD in the Nordic countries 1980-2000. Based on (Data.worldbank.org 2016a)

As it is seen from the figure 8, GDP of Finland and Sweden declined sharply in the beginning of 1990s. The GDP of Sweden plunged in a very short period 1992-1993 from 280 billion of USD to 210 billion. It was the most negative period for Sweden during the time of crisis. If we compare the figure 8 with the figure 7, it is evident that the real estate market in both countries in Finland and Sweden achieved the trough in 1993. In 1993, GDP achieved its minimum also in both Finland and Sweden, with only one difference that GDP of Finland was declining in the more prolonged period of 1990-1993. This is the period, when happened the dissolution of the Soviet Union, so it is evident that Finland have lost major part of its import and export. Finland had to restructure its economy and period of recession was lengthier than in the other Nordic economies.

As we can see, the decline in Norway and Denmark was not that significant as in Finland and Sweden. However, GDP also achieved its bottom point in 1993. If we look, at the figure 7, it is evident that level of property prices achieved the trough as soon as GDP achieved its minimum in a period of 1980-2000.

### 7.1.3. Inflation rate

Higher inflation signalise that there are significant problems in the economy. In the Nordic countries during the years preceding the crisis, inflation rates were relatively high. Governments in all four of the countries (Finland, Sweden, Norway and Denmark) had taken serious measures in order to stabilise the economy.

In Sweden and Finland, tax system gave profound advantages to the borrowers and that was the cause of the bubble creation in the real estate market, as soon as the excessive loan taking stimulates risky behaviour of investors.



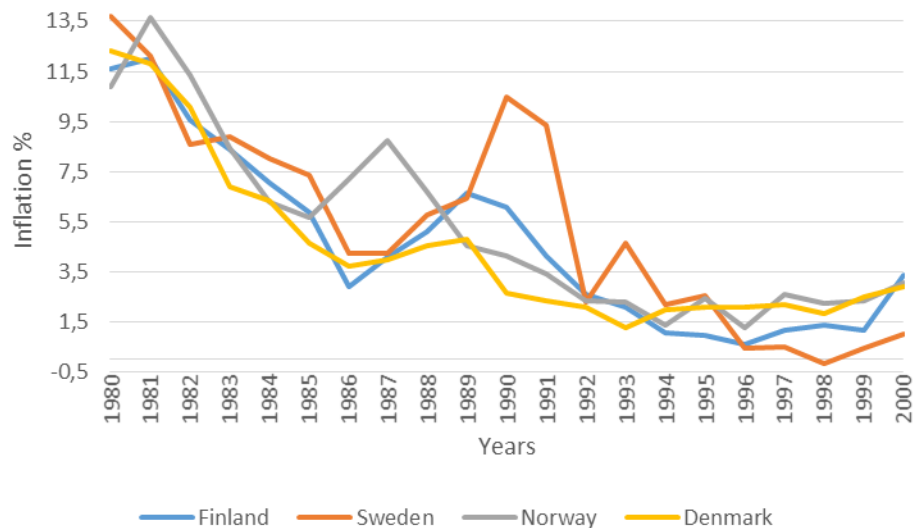


Figure 9. Inflation rate in the Nordic countries 1980-2000. Based on (Data.worldbank.org 2016b)

High inflation leads to a quick increase of the market prices. One of the significant signs of a financial bubble according to Chirkova (2013) is a quick incline in prices over a short period of time.

In Sweden, level of prices in the residential property market achieved its maximum point in 1991. In Finland, level of prices in the residential property market achieved its maximum in 1989, as it is seen in the figure 7. If we compare the figure 7 and the figure 9, it is obvious that the highest pre-crisis inflation rate at the end of 1980s was in Sweden in 1990 and in Finland in 1989, just one or a half a year before the prices achieved its top point in the residential property market in these two countries.

Concerning Norway and Denmark it is possible to say that inflation rates were steadily decreasing, with the only one difference that in Norway inflation rate started to increase in 1985, achieved its maximum in 1987, and continued to decrease. Inflation rates in all four countries were higher than during the pre-crisis period. At the end of the 1990s, inflation rates were at the minimal levels as soon as economies were regulated and were recovering steadily.

#### 7.1.4. Unemployment rate

As it is seen from the figure 10, pre-crisis unemployment rates were rather low in all four countries. In Sweden, unemployment rates were rather low during the pre-crisis years 1988-1990, even below natural rates. In Finland, unemployment was also low during the pre-crisis rates. Too low levels of unemployment stimulate consumption rates and cause quick incline in the prices.

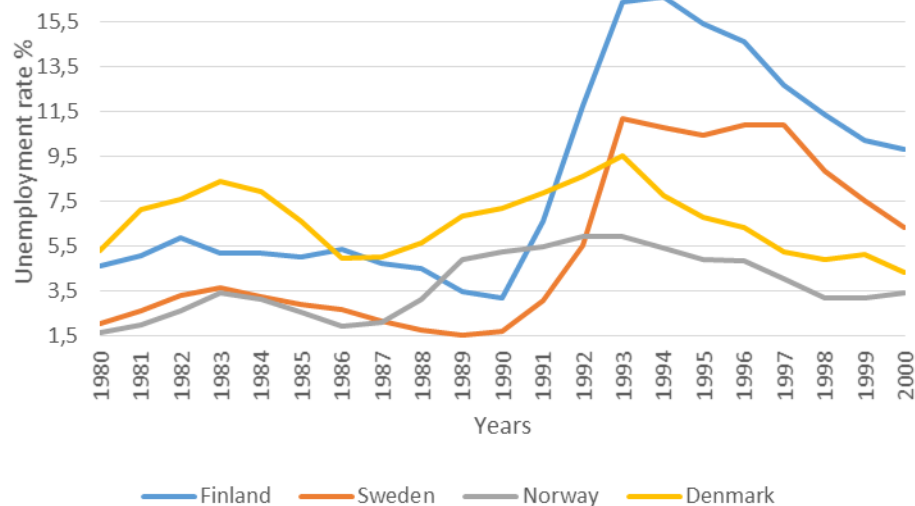


Figure 10. Unemployment rate in the Nordic countries 1980-2000. Based on (Indexmundi.com 2016)

In the figure 10, it is possible to see the rapid increase of the unemployment in Sweden and Finland when there happened a burst of the real estate bubble. Economies started to restructure and the level of unemployment started to increase.

Denmark was able to avoid the crisis in 1990s and it is evident from the figure 10 that in Denmark levels of unemployment remained higher in comparison with the other countries. In Norway, levels of unemployment were also relatively low during the pre-crisis years. However, as the crisis erupted, unemployment rate increased only slightly. Probably due to that fact, Norway was able to remain normal consumption rates and avoid negative consequences, which happened in Sweden and Finland.

## 7.2. Financial crisis in the Baltic countries and in Iceland 2007-2008

The analysis of the crises in the Baltic countries and Iceland is also represented by the four figures the same as the analysis in previous sub-chapter. Analysis of the Baltic countries and Iceland is represented by the four figures: change of the real estate index, change of GDP, change of inflation rates and change of unemployment rates in the period of 2006 – 2015. This period demonstrates the pre-crisis changes of the above mentioned factors and describes the patterns of recovery in the countries under study.

### 7.2.1. Nominal real estate index

It is evident from the figure 11, the presence of the housing bubble in all three Baltic states. Housing bubble started to form in 2005 and achieved its maximum point in 2007 in Latvia and in 2008 in Lithuania and Estonia.

If we look how the residential property index changed during the same period, it is becoming clear that there was no the presence of the real estate bubble in Iceland. Iceland was involved in the other form of crisis – banking crisis, which have caused the collapse of the three major banks in this country.

As Sigurjonsson & Mixa (2011) notice that financial resources started to vanish in Iceland and assets become untradeable.

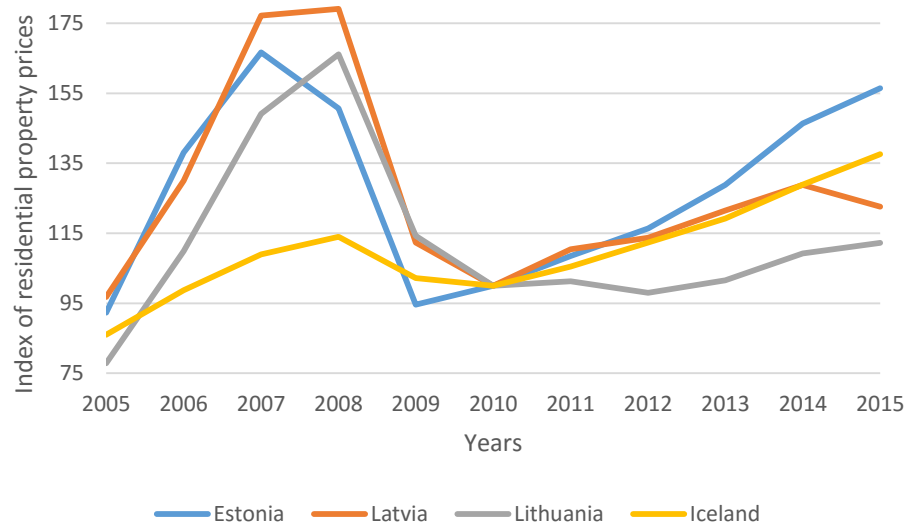


Figure 11. Nominal residential property index in the Baltic countries and in Iceland 2005-2015, base year = 2010. Based on (Bis.org 2016)

It is clear that Icelandic financial system was hit significantly during the crisis time including Icelandic real estate market and construction industry, but there were no that overoptimistic behaviour of financial institutions and investors as in the Baltic countries that have caused the fast burst of the bubble. Because of that factor, recovery in the Baltic countries has been long and prices did not achieve the pre-crisis levels.

### 7.2.2. Change of GDP

As it is seen from the figure 12, during the pre-crisis years, GDP in the Baltic countries was increasing and there were increasing optimism in the banking industry of all three Baltic countries. In Iceland, the increase of GDP stopped in 2007 and was gradually decreasing during the following years.

Probably it was a negative reaction before the turning moment of the crisis in 2008. It was evident that the economic growth started to slow down and GDP of the country reflected the state of the Icelandic economy. It is evident from the figure 12 that recovery was slow in the Baltic countries and in Iceland and they were able to return to the pre-crisis levels of GDP in 2014.

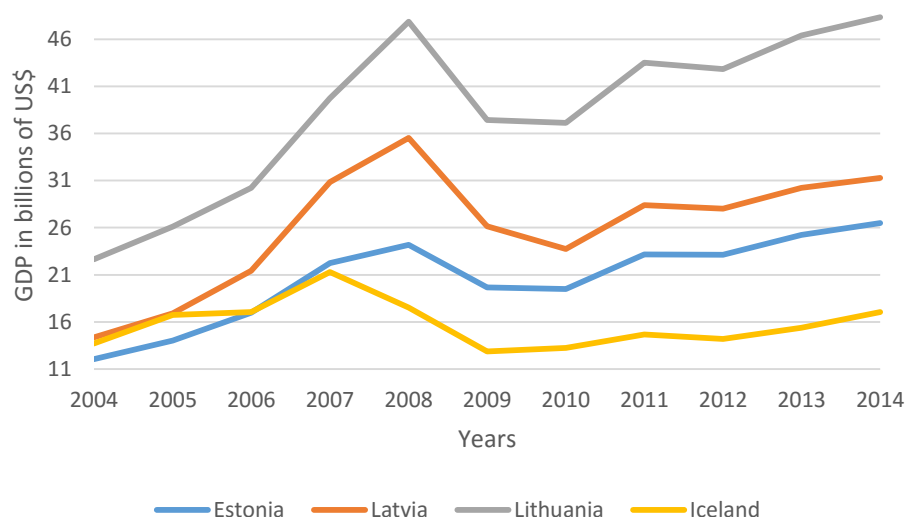


Figure 12. GDP at market prices in billions of current USD in the Baltic countries and in Iceland 2004-2014. Based on (Data.worldbank.org 2016a)

### 7.2.3. Inflation rate

In the Baltic countries, inflation was increasing continuously during the pre-crisis years. In Latvia, which was hit more severely during the financial crisis than two other Baltic states inflation achieved 15.4 percent in 2008.

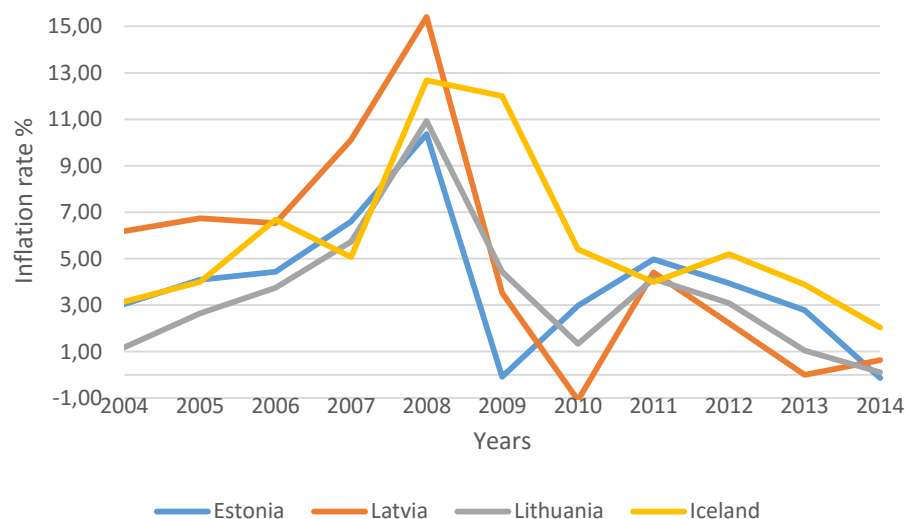


Figure 13. Inflation rate in the Baltic countries and in Iceland 2004-2014. Based on (Data.worldbank.org 2016b)

It is seen from the figure 13 that In Estonia and Lithuania, pre-crisis rates of inflation were higher than 10 percent. Due to quick reaction, inflation rates were lowered in Estonia in 2009 and in Latvia and Lithuania in 2010. Estonia joined Eurozone in 2011, Latvia in 2014 and Lithuania in 2015. That have significantly helped the Baltic countries to avoid the devaluation of the national currencies and to keep low levels of inflation.

Iceland was able to decrease the inflation rate in 2010 and that have significantly influenced on the stabilization of the Icelandic economy. As soon as high inflation signalises the increase of the prices it is one of the bubble creation signs.

It is possible to see from the figure 13 that levels of inflation achieved their maximal points in 2008 in all four countries. If we compare figure 13 and figure 11, it is obvious that the levels of inflation peaked as soon as residential property prices achieved their maximum levels.

#### 7.2.4. Unemployment rate

It is noticeable from the figure 14 that in the all three Baltic states, levels of unemployment were comparatively low before the crisis. That stimulated the quick growth of consumption and lower levels of savings. All these factors were triggered by the cheap loans provided by the foreign banks, which were fighting for the market share in these countries.

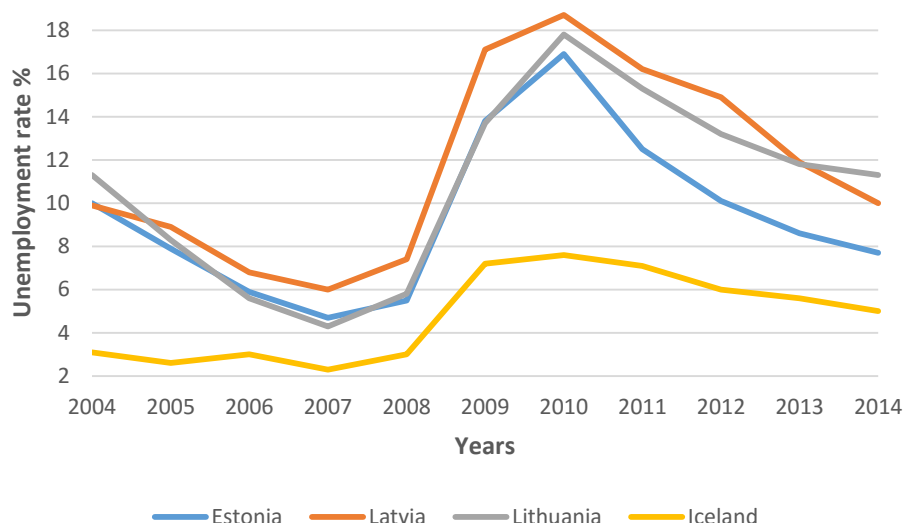


Figure 14. Unemployment rate in the Baltic countries and in Iceland 2004-2014. Based on (Data.worldbank.org 2016c)

It is visible in the figure 14 that in two years, 2008-2009 levels of unemployment achieved their maximum levels as soon as the crisis erupted and happened the burst of real estate bubble. After the crisis, levels of unemployment also increased significantly in Iceland, but in a lower scale than in the Baltic countries. Probably it is because the Icelandic job market is quite small and there were no that instant burst of the real estate bubble as there were in the Baltic countries.

## Part IV – Conclusion and discussion

### 8. Conclusion

Last part summarises the outcomes of the research and provides the discussion of the research questions. In this conclusive part of the research, a number of suggestions is made for the possible further research.

#### 8.1. The results of the study

The main aim of the given research was to provide the reader with answers to the following research question and the two sub-questions:

*Which factors have caused the creation of the bubbles in the real estate market during the series of crises in Scandinavia in the 1990s and in the Baltic countries and Iceland during the global financial crisis?*

- 1) Why were some countries less affected by the crisis than the others?*
- 2) Were the crises caused mainly by the local factors or, alternatively, by the global factors as well?*

It is possible to say that factors, which create the property bubbles, are multiple and vary in the different countries. One common aspect, however, is a pre-crisis boom period. During the boom period various mechanisms are activated, and which eventually lead to the crisis and further depression. For instance, Brunnermeier & Oehmke (2013) differentiate two phases of every crisis: 1) when bubble forms and 2) when it bursts.

It is clearly seen from the cross-case analysis of both cases that the countries, which suffered seriously from the crises, had deregulated their economies and did not notice the formation of the bubbles. Thus, in the case of Scandinavian crisis of 1990s, it is visible that in Finland and in Sweden the mechanisms to impose banking discipline were not strict enough, while the market participants felt overly self-confident in the bullish market. These factors correspond to the factors suggested by Okina et al. (2001) as the main triggering factors of any bubble creation.

From the study of the crises in Baltic countries in 2007-2008 it is evident that the factors suggested by Chirkova (2013); Shevchuk & Drobinko (2015); Okina et al. (2001) could be observed during these crises. Period of the boom in the Baltic countries was followed by the quick increase in prices; many non-professionals entered the real estate market because of the availability of the cheap credit loans; the population of the Baltic countries had optimistic expectations for the future and many investors acquired assets solely for the speculative purposes. Finally, as it is evident from the case analysis, an excessively large amount of funds was directed to the financial sector. Foreign banks competed for the market share in the Baltic countries and separate segments of the markets were growing, in particular the financial banking sector, the construction sector and the real estate sector. Nearly all the factors which characterise the presence of a bubble according to Chirkova (2013) were present during the crises in the Baltic countries.

In Iceland, however, the situation was completely different. Real estate market was not hit that severely as it was in the Baltic countries. Only the banking sphere suffered and the three largest banks of Iceland were eventually expropriated by the state.

In order to answer the second sub-question it is necessary to review the economies of the countries during the pre-crisis times. It is noticeable that there was no real property bubble in Denmark in the 1990s, and in Norway the real property bubble was significantly smaller from that in Finland and Sweden. Denmark was a front-runner to improve on the macroeconomic level as it was described by the Vastrup (2009). The cross-case analysis also shows that there was no quick increase in the residential property prices. Therefore, the answer to the second sub-question is an appropriate macroeconomic policy. Such policy could help to avoid the unhealthy overheating of the economy.

With regards to the Baltic countries' crises, it is important to note that the economic recovery started earlier in Estonia than in Latvia and Lithuania, since the burst of the bubble was faster and that helped to avoid several negative consequences and join the Eurozone earlier. The GDP of Estonia did not change much after the crisis, which in its turn contributed to the smoother recovery.

Both local and global factors were behind the crises in Scandinavia in the 1990s. In case of Finland, the global factors in question were the declining energy prices and the increase of global prices of forest products. Another global factor was the dissolution of the Soviet Union. After the dissolution of the Soviet Union Finland has lost 70% of its import and export as it was noticed by Honkapohja (2009).

For Sweden, similar global factors were relevant, with the notable exception of the dissolution of the Soviet Union. The latter had no economic impact on Sweden according to Honkapohja (2009).

In Norway, much influence was exerted by the decreasing oil prices. Denmark avoided the systemic crisis, so there were no global factors which affected its economy. As to the local factors, it is possible to conclude that the main internal factors were the high pre-crisis inflation rates, the increasing amounts of loans and the fast increase in the real estate prices.

Crises in the Baltic countries and in Iceland were similarly caused by both external and internal factors. However, in the Baltic countries the role of the internal factors was more significant, while in the case of Iceland, on the contrary, the role of global factors was of more importance.

The cross-case analysis demonstrates the influence of the fundamental factors and their role in the creation of bubbles. The author shows how factors like GDP change, inflation rates and unemployment rates influence the bubble creation by studying the changes of residential property index. The case study permitted to give a general overview of the economic situation in the countries described.

All things considered, it is possible to make the following conclusions based on the outcomes of the research:

- 1) Every bubble in a real estate market is created by a prolonged pre-crisis boom period.
- 2) Higher inflation rates stimulate the quick increase of the prices, and as a result lead to the increase in the real property prices and the economy overheating.
- 3) From the previous point it possible to conclude that the inflation rates are higher in the pre-crisis times.
- 4) After the burst of the bubble, unemployment starts to increase very quickly, at the same time pre-crisis levels of unemployment are usually very low.
- 5) There are significant time risks in the real estate markets leading to losses for the investors, who entered the market during the peak of the boom period.

All these conclusions are supported by the theoretical review of the literature, as well as by the empirical study in the cross-case analysis.

## **8.2. Further research**

This research provides the reader with a general picture of the real estate bubble creation and the causes of the real estate crises. Most of the crises were unavoidable since it was not possible to understand in which moment of the real estate cycle the real estate market was, and since the boom periods start unexpectedly and rapidly. Further research should involve the creation of a suitable econometric model to cover most of the multiple factors described in the given research. Such model must be focused on the real estate cycles and differentiate the behaviour of investors based on these factors. The results of such a study may be useful for the housing companies, the real estate investment firms and for the financial institutions in order to adjust their business strategies in a particular situation and to avoid unnecessary risks.



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